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The galaxy cluster concentration–mass scaling relation

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ABSTRACT
Scaling relations of clusters have made them particularly important cosmological probes of structure formation. In this work, we present a comprehensive study of the relation between two profile observables, concentration ($c_{\rm vir}$) and mass ($M_{\rm vir}$). We have collected the largest known sample of measurements from the literature which make use of one or more of the following reconstruction techniques: weak gravitational lensing (WL), strong gravitational lensing (SL), weak+strong lensing (WL+SL), the caustic method (CM), line-of-sight velocity dispersion (LOSVD), and X-ray. We find that the concentration–mass (c–M) relation is highly variable depending upon the reconstruction technique used. We also find concentrations derived from dark matter-only simulations (at approximately $M_{\rm vir} \sim 10^{14}\,{\rm M}_{\odot}$) to be inconsistent with the WL and WL+SL relations at the 1σ level, even after the projection of triaxial haloes is taken into account. However, to fully determine consistency between simulations and observations, a volume-limited sample of clusters is required, as selection effects become increasingly more important in answering this. Interestingly, we also find evidence for a steeper WL+SL relation as compared to WL alone, a result which could perhaps be caused by the varying shape of cluster isodensities, though most likely reflects differences in selection effects caused by these two techniques. Lastly, we compare concentration and mass measurements of individual clusters made using more than one technique, highlighting the magnitude of the potential bias which could exist in such observational samples.

Key words: gravitational lensing: strong – gravitational lensing: weak – galaxies: clusters: general – dark matter.

1 INTRODUCTION

Galaxy clusters have long been used as probes of cosmology. Cluster observables, like X-ray luminosity, $L_{\rm X}$, optical richness, and line-of-sight galaxy dispersion, $\sigma_{\rm v}$, are closely tied to the formation and evolution of large-scale structures, and scale with redshift and the mass of the host halo (Sereno & Ettori 2015). Scaling relations of clusters also provide a way of testing cosmology (Vikhlinin et al. 2009; Mantz et al. 2010, 2014; Rozo et al. 2010), though are imperfect proxies for mass, due to the two-dimensional view they provide for us. Large cosmological simulations provide a detailed three-dimensional view of the hierarchical process of structure formation, one that is unattainable by even the most accurate reconstruction techniques available.

The radial density profiles of clusters, well modelled by the universal NFW profile (Navarro, Frenk & White 1997), appear to be a prevailing outcome of simulations regardless of cosmology (Craig 1997; Kravtsov, Klypin & Khokhlov 1997; Navarro et al. 1997; Bullock et al. 2001):

$$\rho(r) = \frac{\delta_{\rm c}\rho_{\rm cr}}{\frac{r}{r_{\rm s}}\left(1+\frac{r}{r_{\rm s}}\right)^2} \quad (1)$$

$$\rho_{\rm cr} = \frac{3H(z)^2}{8\pi G}. \quad (2)$$

However, the details of the relationship between the two model parameters, halo mass, M, and concentration, c, are sensitive to small changes in initial parameters (Macciò, Dutton & van den Bosch 2008; Correa et al. 2015a). The physical interpretation of a halo's concentration (defined as the ratio of the virial radius, $R_{\rm vir}$, to the radius at which $\rho \propto r^{-2}$, called the scale radius, $r_{\rm s}$) is that it is a measure of the 'compactness' of the halo, and determines the physical scale on which the density profile rises steeply.

The first indication of the connection between halo concentration and mass (hereafter, the c–M relation) was discovered through simulations of structure formation by Navarro et al. (1997), and later

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confirmed by Bullock et al. (2001), who found a strong correlation between an increasing scale density, $\rho_s = \delta_c \rho_{cr}$, for decreasing mass, M_{vir}. The explanation for this anti-correlation between concentration and mass is that low-mass haloes tend to collapse and form relaxed structures earlier than their larger counterparts, which are still accreting massive structures until much later. A consequence of early collapse is that haloes will have collapsed during a period of higher density, leading to a larger central density (and hence larger concentration) as compared to haloes which formed later.

Many studies (most recently, e.g. Correa et al. 2015b) focus on the physical motivation for the existence of this relationship, and suggest that the mass accretion history (MAH) of haloes is the key to understanding the connection between cluster observables and the environment in which they formed (Bullock et al. 2001; Wechsler et al. 2002; Zhao et al. 2003). These studies have found that while the mass accretion rate on to the halo is slow, the concentration tends to scale with the virial radius, $c \propto r_{vir}$ (caused by a constant scale radius), while the concentration remains relatively constant for epochs of high mass accretion. The MAH itself depends upon the physical properties of the initial density peak (Dalal et al. 2008), which is a function of cosmology, redshift, and mass (Diemer & Kravtsov 2015).

Longstanding tension has existed between cluster concentrations derived from simulations and observational measurements. Concentrations have been found to differ the most for gravitational lensing techniques (Comerford & Natarajan 2007; Broadhurst et al. 2008; Oguri et al. 2009; Umetsu et al. 2011b). This overconcentration in favour of observational measurements can be partially explained by the orientation of triaxial structure along our line of sight (Oguri et al. 2005; Sereno & Umetsu 2011), which has the effect of enhancing the lensing properties (Hennawi et al. 2007). Neglecting halo triaxiality (Corless, King & Clowe 2009) and substructure (Meneghetti et al. 2010; Giocoli et al. 2012) also each have significant effects on halo parameters. For its effect on WL and X-ray mass estimates, see Sereno & Ettori (2014).

Discrepancies in how measurements of the intrinsic concentration are made using simulations also exist, along with studies who disagree on the inner slope of the density profile (Moore et al. 1999; Ghigna et al. 2000; Navarro et al. 2004). However, the most puzzling and potentially interesting disparity between simulations is the existence of the upturn feature in the *c–M* relation (see for example, fig. 12 of Prada et al. 2012) at high redshift (Prada et al. 2012; Dutton & Macciò 2014; Klypin et al. 2014; Diemer & Kravtsov 2015), which some argue is an artefact caused by the selection of haloes which are dynamically unrelaxed (Ludlow et al. 2012). This novel feature only shows up when the concentration is expressed as a profile-independent halo property (in terms of the ratio of the maximum circular velocity to the virial velocity, V_{max}/V_{vir}). In terms of the classical definition of concentration, this feature disappears (see Meneghetti & Rasia 2013).

The connection between the observed concentration, c_{2D}, and the intrinsic concentration, c_{3D}, is further complicated, since it has been shown that relaxed cluster isodensities are not constant on all scales (Frenk et al. 1988; Dubinski & Carlberg 1991; Warren et al. 1992; Cole & Lacey 1996; Jing & Suto 2002; Hayashi, Navarro & Springel 2007; Groener & Goldberg 2014). Indeed, in a previous study by Groener & Goldberg (2014), it has been shown that a halo's concentration is an ill-defined two-dimensional quantity, without first specifying the scale on which the measurement was made. Using the MultiDark MDR1 cosmological simulation, Groener & Goldberg (2014) found a systematic shift of about ∼18 per cent in the mean value of the projected concentration, c_{2D}, between weak and strong lensing scales, for low-mass cluster haloes (2.5–2.6 × $10^{13}\,h^{-1}\,M_{\odot}$) observed with their major axes aligned with the line-of-sight direction. Though this difference is notably smaller than the intrinsic scatter of the concentration parameter (c_{3D}) for a given halo mass, the origin of this systematic effect is solely due to the changing shape of cluster isodensities as a function of radius.

For many objects, not only do observed concentrations seem to differ substantially from those obtained in cosmological simulations, but concentrations can also vary depending on which method is used. Since different reconstruction methods probe varying scales within the halo, it is not unreasonable to suspect that there exist systematic differences in the observed *c–M* relation caused by shape.

In this paper, we focus on three main objectives.

(i) We present the current state of the observational concentration–mass relation for galaxy clusters by aggregating all known measurements from the literature. The raw data are reported in Table A1, and have been made publicly available (see Appendix A). We also provide an additional table (available only online), where data have been normalized over differences in assumed cosmology, overdensity convention, and uncertainty type found in the original studies.

(ii) We model the observed concentration–mass relation for each method, and compare these to one another, highlighting potential differences which exist, caused by the projection of structure along the line of sight, the varying shape of cluster isodensities, and the selection of clusters from the cosmic population.

(iii) Using the largest cluster sample to date, we determine if the observed *c–M* relation is consistent with theory, when taking halo triaxiality and elongation of structure along the line of sight into account.

In Section 2, we summarize many of the most common mass reconstruction techniques which are used throughout the cluster community, and include a discussion regarding physical scales probed within the cluster using these methods. In Section 3, we discuss the procedure for collecting our sample from the literature, and normalizing over convention, cosmology, and uncertainties. In Section 4, we present results for the observed *c–M* relation for each method, and in Section 5, we discuss the projection of triaxial haloes from simulations to the observed lensing relations. Lastly, in Section 6, we conclude and discuss our findings.

Throughout this paper, we adopt a flat Λ cold dark matter cosmology, $\Omega_m = 0.3$, $\Omega_\Lambda = 0.7$, and $H_0 = 70$ km s^{-1} Mpc^{-1}. Generally speaking, we reserve the following colours within plots to represent the various methods:

(i) caustic method (CM): blue;
(ii) line-of-sight velocity dispersion (LOSVD): orange;
(iii) X-ray: green;
(iv) weak lensing (WL): purple;
(v) strong lensing (SL): red;
(vi) weak + strong lensing (WL+SL): black.

Unless otherwise stated, throughout the study, uncertainties are reported as 1σ (68.3 per cent) Gaussian uncertainties.

2 CLUSTER MASS RECONSTRUCTION TECHNIQUES

In this section, we present a brief overview of common mass reconstruction techniques and modelling of the cluster density profile.

Table 1. Population overview.

Method	N_{meas}	N_{cl}	$\min(M_{vir}/10^{14}\,M_\odot)$	$\langle M_{vir}/10^{14}\,M_\odot\rangle$	$\max(M_{vir}/10^{14}\,M_\odot)$	$\min(c_{vir})$	$\langle c_{vir}\rangle$	$\max(c_{vir})$	$\min(z)$	$\langle z\rangle$	$\max(z)$
CM	82	79	<1.0	3.9	18.6	<2.0	8.9	36.7	0.003	0.06	0.44
LOSVD	70	59	1.3	5.8	17.1	<2.0	8.8	39.0	0.01	0.06	0.44
X-ray	290	195	<1.0	26.1	>40.0	<2.0	7.2	26.2	0.003	0.22	1.41
WL	169	111	<1.0	12.4	>40.0	<2.0	8.1	64.5	0.02	0.48	1.45
WL+SL	113	58	<1.0	8.7	31.8	2.3	10.2	30.6	0.18	0.53	1.39
SL	19	11	3.2	24.3	>40.0	3.8	11.2	27.5	0.18	0.47	0.78

2.1 Weak lensing (WL)

Weak gravitational lensing is the process by which images of background galaxies are distorted by massive foreground objects. Though these distortions cannot be detected for any given source, it is possible to obtain a signal by locally averaging the shapes (ellipticities) of galaxies. This shear measurement within a given bin can be used as a direct proxy for the lens density profile at intermediate to large radii.

For a symmetric distribution, the azimuthally averaged tangential shear, $\langle\gamma_t\rangle$, as a function of radius from the cluster centre can then be calculated, and relates to the convergence, κ, in the following way:

$$\langle\gamma_t\rangle(r) = \frac{\bar{\Sigma}(<r) - \bar{\Sigma}(r)}{\Sigma_{cr}} = \bar{\kappa}(<r) - \bar{\kappa}(r), \quad (3)$$

where the critical surface mass density is defined in terms of cosmology-dependent angular diameter distances D_s (source), D_{ds} (lens to source), and D_d (lens):

$$\Sigma_{cr} = \frac{c^2 D_s}{4\pi G D_{ds} D_d} \quad (4)$$

Expressions, specifically for the NFW profile, for the convergence (Bartelmann 1996) and the tangential shear (Oaxaca Wright & Brainerd 1999) have been derived, and can be used for model fitting.

WL comes with its own intrinsic biases in that more massive clusters produce larger distortions of background galaxies. As a result, in a survey of clusters, the expectation is that nearly all of the most massive clusters would be *selected* from the population. However, in the low-mass region, clusters which are highly triaxial and elongated along the line of sight (i.e. larger 2D concentrations) are more likely to pass the observational signal-to-noise threshold than ones which are not. The net effect here is an artificial steepening of the *c*–*M* relation due to selection. Furthermore, lensing geometry plays an additional role in how clusters are selected. Clusters which are too distant lack the requisite number density of background galaxies to obtain high signal-to-noise (Bartelmann & Schneider 2001). Table 1 presents the range in redshift for WL clusters, where most measurements are found to lie in the redshift range of $z = 0.2$–0.6, with $M_{vir} \gtrsim 1 \times 10^{14}\,M_\odot$.

2.2 Strong lensing (SL)

A natural extreme of the phenomenon of gravitational lensing can occur if a background galaxy is serendipitously aligned with the core of a cluster. In such cases, the projected surface mass density is so high that multiple images of the object are produced, commonly distorting them so much that they appear arc-like.

A density profile can be obtained by fitting a model to the observed image positions, orientations, and fluxes, though this technique constrains the cluster profile on small scales (approximately the Einstein radius, θ_E,[1] which is typically ∼5 per cent of the virial radius, r_{vir}, or ∼50 per cent of the scale radius, r_s; Oguri & Blandford 2009).

Due to the irregular occurrence of multiple images and arcs, cluster measurements made with SL are particularly prone to selection effects, and likely represent a biased sampling of the cosmic population. In fact, the efficiency of lensing is increased with increasing mass and concentration, and a preferential line-of-sight alignment of the triaxial halo (Oguri & Blandford 2009). Concentrations derived from this method have been contentiously high as compared to X-ray studies (Comerford & Natarajan 2007).

2.3 Weak+strong lensing (WL+SL)

Combining weak and strong gravitational methods constrains the density profile over a wide range of scales, and also has the ability to break the mass-sheet degeneracy (Schneider & Seitz 1995). Recent efforts to combine these methods have become more prevalent in the literature (CLASH, Merten et al. 2014; SGAS; Oguri et al. 2012), and work to reconstruct the lensing potential by minimizing a combined least-squares approach:

$$\chi^2(\psi) = \chi^2_w(\psi) + \chi^2_s(\psi). \quad (5)$$

2.4 X-ray

Massive clusters are significant sources of X-ray radiation, due to the hot diffuse plasma ($k_B T_e \sim 10\,$keV) emitting via thermal bremsstrahlung, and can be used to determine the total distribution of mass. Under assumptions of spherical symmetry and hydrostatic equilibrium with the underlying potential (Evrard, Metzler & Navarro 1996), temperature and gas density information, ρ_g, are used to determine the total mass of the cluster, typically at intermediate scales ($\sim r_{500}$, corresponding to the radius at which the average density inside is 500 times ρ_{cr}):

$$M(r) = \frac{kT(r)}{G\mu m_p} r \left(\frac{d\log\rho_g(r)}{d\log r} + \frac{d\log T(r)}{d\log r}\right). \quad (6)$$

These assumptions are often violated due to non-thermal pressure sources, temperature inhomogeneity, and to the presence of substructures further out (Rasia et al. 2012), and bias low mass estimates by 25–35 per cent.

[1] The Einstein radius for a point mass is $\theta_E = (\frac{4GM}{c^2}\frac{D_{LS}}{D_L D_S})^{1/2}$. Though there is no corresponding functional form for an NFW profile, typical values for clusters lie in the range: 10–45 arcsec (Kneib et al. 2003; Broadhurst et al. 2005b).

2.5 Line-of-sight velocity dispersion (LOSVD)

The distribution of mass within clusters can also be obtained by using the kinematics of cluster galaxies, specifically by using the moments of the velocity distribution. Reconstruction methods, developed by Łokas (2002) and Łokas & Mamon (2003), use the second (dispersion) and fourth (kurtosis) moments of the velocity distribution, which relies on the underlying gravitational potential. Assuming that the distribution of mass follows an NFW profile, free parameters, which include $M_{\rm vir}$ and $c_{\rm vir}$, can be fitted to the observed data.

The business of identifying clusters as mass overdensities, determining cluster membership, removal of interlopers, and reconstruction details vary from technique to technique. For a more complete review of the reconstruction methods and their impact on cluster observables, see Old et al. (2014).

2.6 The caustic method (CM)

With the exception of WL, the CM is the only other stand-alone method which has been successful in probing the density profile at large distances from the cluster centre ($\gtrsim r_{\rm vir}$). Cluster galaxies, when plotted in line-of-sight velocity versus projected cluster-centric distance phase space, create a characteristic 'trumpet shape', the boundaries of which form what is referred to as caustics (Kaiser 1987; Regos & Geller 1989). The existence of these caustics marks an important boundary which envelops a volume of space in which galaxies are gravitationally bound to the cluster. Outside of this turnaround radius, galaxies are ultimately carried away in the Hubble flow.

The width of the caustic (velocity) at any given projected radius, $\mathcal{A}(R)$, can then be related to the escape velocity due to the gravitational potential of the cluster, under the assumption of spherical symmetry (Diaferio & Geller 1997). Through simulations of structure formation, Diaferio (1999) has shown that the caustic amplitude can be related to the mass interior to radius r by

$$GM(<r) = \frac{1}{2}\int_0^r \mathcal{A}^2(R)\,\mathrm{d}R. \qquad (7)$$

The success of the CM is independent of any assumptions regarding dynamical equilibrium of the cluster, and has been used to reconstruct profiles over a larger range of scales: from the inner regions to a few times the virial radius (CAIRNS, Rines et al. 2003; CIRS, Rines & Diaferio 2006; HeCS, Rines et al. 2013). However, this technique requires the measurements of at least 30–50 cluster members, and thus limits this method to clusters at relatively low redshifts compared to lensing and X-ray techniques. More recently, Rines et al. (2013) make use of this technique using $\sim$200 cluster members.

2.7 Hybrid techniques

The aforementioned methods represent the most commonly applied techniques for constructing a density profile; however, they do not represent them all. Novel combinations of methods have also been used, but could not be included in a study of this kind. For instance, Lemze et al. (2008) combine joint lensing and X-ray methods to make a determination of Abell 1689. Thanjavur, Crampton & Willis (2010) and Verdugo et al. (2011) use a combination of lensing and dynamics. Additionally, in an attempt to only compare methods used in Comerford & Natarajan (2007), we consciously leave out measurements made with the Sunyaev–Zel'dovich (SZ) effect, or which use combinations of techniques one of which uses SZ.

Previous studies have even employed these multi-technique reconstructions to clusters in an attempt to break the line-of-sight mass degeneracy (for a review of these techniques, see section 2 of Limousin et al. 2013; see also Ameglio et al. 2007; Sereno, Ettori & Baldi 2012). However, it is unclear if techniques such as this can adapt to arbitrarily complicated profiles, where shape is scale dependent, or where isodensities are not co-axial with one another (isodensity twisting).

3 THE SAMPLE

The sample of clusters collected from the literature consists of a total of 781 cluster measurements, reported by 81 studies (Table A2), representing the largest known collection of cluster concentration measurements to date. Of these, there are 361 unique clusters, giving us a sizeable sampling of the cluster population as a whole, in addition to multiple measurements of individual clusters (often coming from more than one category of reconstruction technique).

This study builds off of work done by Comerford & Natarajan (2007), which aggregated 182 cluster measurements of 100 unique cluster objects. In accordance with that study, we also report measurements of concentration (and mass) in the most popular conventions, c_{200}, and $c_{\rm vir}$.

Table 1 presents population averages of masses and concentration, as well as their range in redshift for the six reconstruction techniques we reference throughout this study. This information highlights the importance of the selection function of clusters, though we make no attempt in this paper to distinguish between whether a lack of measurements of certain values for a given method is due to its inability to make these determinations, or whether it is simply a preferential selection effect.

3.1 Normalization procedure

Due to the nature of this study, cluster measurements must be properly normalized to ensure that they are compared to one another on equal footing. In this section, we discuss the steps taken to eliminate biases due to overdensity convention, assumed cosmology, and due to differences in the definitions of measurement uncertainty, respectively.

3.1.1 Convention

Under the assumption that the radial density profile follows an NFW profile, Hu & Kravtsov (2003) derive a procedure for the conversion of both concentration and mass between any two arbitrary characteristic radii. We apply these formulae as a first round of our normalization procedure.

3.1.2 Cosmology

Measurements taken from the literature do not always use the same fiducial cosmology, and thus are not immediately comparable. Because of this, we develop a procedure for converting measurements between any two arbitrary cosmologies. Appendix B outlines this procedure for general lensing methods.

For extreme cosmologies, the correction to the concentration parameter, $c_{\rm vir}$, and mass, $M_{\rm vir}$, is approximately 5 and 10 per cent, respectively. This correction is significantly smaller than other known effects. Moreover, the vast majority of all measurements we have collected assume flat cosmologies which lie in the range $\Omega_\Lambda = 1 - \Omega_m = 0.73$–$0.68$. The corrections to the concentration and mass in this range are ∼1 per cent.

3.1.3 Uncertainties

Another complication which must be accounted for is the usage of multiple definitions of measurement uncertainty on resulting mass and concentration estimates reported throughout the literature. Particularly, many fitting procedures (namely methods which involve brute force exploration of likelihood space) produce maximum-likelihood estimates of parameters of interest and corresponding confidence intervals. However, most studies do not report the marginal distributions from their fitting procedures, and consequently limit the utility of their measurements for those looking to compare or adopt their values.

Furthermore, the mathematical theorems which dictate the propagation of error of measurements rely on expected values and variances, rather than maximum-likelihood estimates and probability intervals. D'Agostini (2004) argues that the expected value and standard deviation should *always* be reported, and in the event of an asymmetric distribution, one should also report shape parameters or best-fitting model parameters as well. Most importantly, any published result containing asymmetric uncertainties causes the value of the physical quantity of interest to be biased.

We follow the procedure outlined in D'Agostini (2004) for symmetrizing measurements with asymmetric uncertainties (to first order), $\theta_{m}{}^{\Delta_+}_{\Delta_-}$, and apply this to both cluster mass and concentration measurements,

$$\sigma_\theta \approx \frac{\Delta_+ + \Delta_-}{2}, \tag{8a}$$

$$E[\theta] \approx \theta_m + \mathcal{O}(\Delta_+ - \Delta_-). \tag{8b}$$

Additionally, many studies report measurements without uncertainties altogether. For these clusters, we apply uncertainty based upon the estimate of the average fractional uncertainty of all other measurements of its type. The most notable method having this issue is the CM, where virtually no measurements are accompanied by uncertainties. In this case, we apply the same fractional uncertainty to all measurements equally, and is derived from the average fractional error of LOSVD concentration and mass measurements.

Lastly, a large fraction of clusters represented in our data base have multiple concentration and mass measurements, leading subsequent fits to be more sensitive to these particular objects. In order to prevent fits from being dominated by the most popular clusters (e.g. Abell 1689, of which there are 26 measurements in total), we combine similar measurements using an uncertainty-weighted average value.

4 THE OBSERVED CONCENTRATION–MASS RELATION

In Fig. 1, we show the full cluster data set after applying the normalization procedures discussed in the previous section. Following this, we present here the results of our fitting procedure to these data. The typical prescription for modelling the *c*–*M* relation is to use a double power-law model of the following form:

$$c(M) = \frac{A}{(1+z)^\beta}\left(\frac{M}{M_*}\right)^\alpha, \tag{9}$$

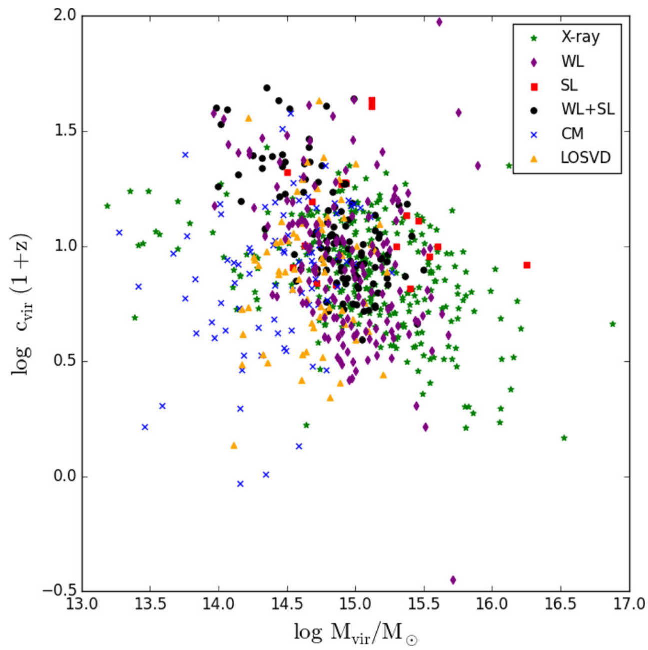


Figure 1. The full normalized observational cluster sample, coloured by method. Uncertainties have been omitted here for clarity.

where the power-law indices, α and β, control the dependence of the concentration with respect to mass and redshift. The model parameter, A, controls the normalization of the relation, once a suitable M_* has been chosen ($M_* = 1.3 \times 10^{13}\,h^{-1}\,\mathrm{M}_\odot = 1.857 \times 10^{13}\,\mathrm{M}_\odot$).

We follow convention in using the above model, but in a slightly different form, with the power-law index, β, fixed to unity. The particular choice of $\beta = 1$, and pivot mass $M_* = 1.3 \times 10^{13}\,h^{-1}\,\mathrm{M}_\odot$, is for ease of comparison with previous large studies of the *c*–*M* relation (Comerford & Natarajan 2007). We adapt this model to a linear model in the following way:

$$\mathcal{Y} = m\mathcal{X} + b \pm \sigma_{\rm int}, \tag{10}$$

where variables and model parameters relate to the initial model in the following way:

$$\mathcal{Y} \equiv \log c(1+z) \tag{11a}$$

$$\mathcal{X} \equiv \log M \tag{11b}$$

$$m = \alpha \tag{11c}$$

$$b = \log A - \alpha \log M_*. \tag{11d}$$

We introduce the intrinsic scatter, $\sigma_{\rm int}$, as a fixed parameter, which we estimate from the data (independently from the fit itself), and is assumed to be constant over the full mass range:

$$\sigma^2_{\rm int} = \sigma^2_{\rm res} - \langle\sigma^2_{\mathcal{Y}}\rangle, \tag{12}$$

where $\sigma_{\rm res}$ is the scatter in the residual between the data and the best-fitting model, and $\langle\sigma^2_{\mathcal{Y}}\rangle$ is the average squared-uncertainty in the dependent variable. The idea here is that the scatter in the residual must be accounted for by a combination of scatter due to the intrinsic relation itself and the uncertainties in the measurements of the observables. We also note that although the value of the redshift for any given cluster has an effect on the uncertainty of the variable $\mathcal{Y}$, the uncertainties in the measured redshifts themselves do not

Table 2. Best-fitting concentration–mass relation parameters.

Method	N_{cl}	m^a	$\sigma_m{}^b$	b	σ_b	A^c	$\sigma_A{}^d$	$\sigma_{int}{}^e$	χ^2_{red}	Bootstrap → m	σ_m	b	σ_b	A	σ_A
CM	63	0.280	0.003	− 3.138	0.038	3.778	0.677	0.242	0.327	0.28	0.19	− 3.16	2.73	3.59	43.43
LOSVD	58	0.010	0.002	0.728	0.025	7.256	0.861	0.228	1.000	0.13	0.17	− 1.00	2.55	5.31	58.74
X-ray	149	− 0.105	0.001	2.494	0.010	12.612	0.676	0.160	1.224	− 0.17	0.03	3.38	0.44	13.32	25.69
WL	93	− 0.379	0.001	6.576	0.014	35.246	2.213	0.118	1.302	− 0.43	0.11	7.35	1.62	44.10	312.68
WL+SL	57	− 0.534	0.001	8.977	0.016	77.882	5.249	0.130	1.070	− 0.54	0.10	9.10	1.46	86.06	552.28
SL	10	0.097	0.004	− 0.422	0.062	7.236	1.951	0.254	1.003	0.11	0.23	− 0.60	3.49	7.24	109.02
All (this work)	293	− 0.152	0.001	3.195	0.007	15.071	0.703	0.146	1.354	− 0.16	0.03	3.26	0.44	13.71	26.45
All (CO07.1)	62	− 0.14	0.12	–	–	14.8	6.1	0.15	–	–	–	–	–	–	–

Notes. [a]The slope, m, of the linear model is exactly equivalent to the power-law index α.
[b]$\sigma_m = \sigma_\alpha$.
[c]The normalization parameter, A, depends upon both m and b: $A = 10^{b+m \log M_*}$.
[d] Uncertainty was propagated through expression (3).
[e]Equivalent to the scatter in $\log c_{\rm vir}$ reported in previous studies.

contribute much to the overall uncertainty of the best-fitting model parameters.

After measurements have been normalized, we eliminate extreme values of mass and concentration. Simulations tell us that the most massive clusters which exist at present are approximately a few times 10^{15} $M_\odot$. Accordingly, we remove masses which are larger than 4×10^{15} $M_\odot$. We also remove masses lower than 1×10^{14} $M_\odot$, since best-fitting parameters are particularly sensitive to this mass bin (representing data for low-mass galaxy clusters and galaxy groups). Lastly, concentrations which are lower than 2 indicate rather poor NFW fits to the density profile, and will bias our inferred parameters.

In Table 2, we present our best-fitting linear model parameters, and their mapping back to the original power-law model. In Fig. 2, individual fits to each subsample are shown alongside normalized data points. Lensing (WL and WL+SL) and X-ray relations show a clear trend consistent with concentration decreasing with increasing mass. We also include a bootstrap analysis of these fits, to reveal the sensitivity of the fits to the data.

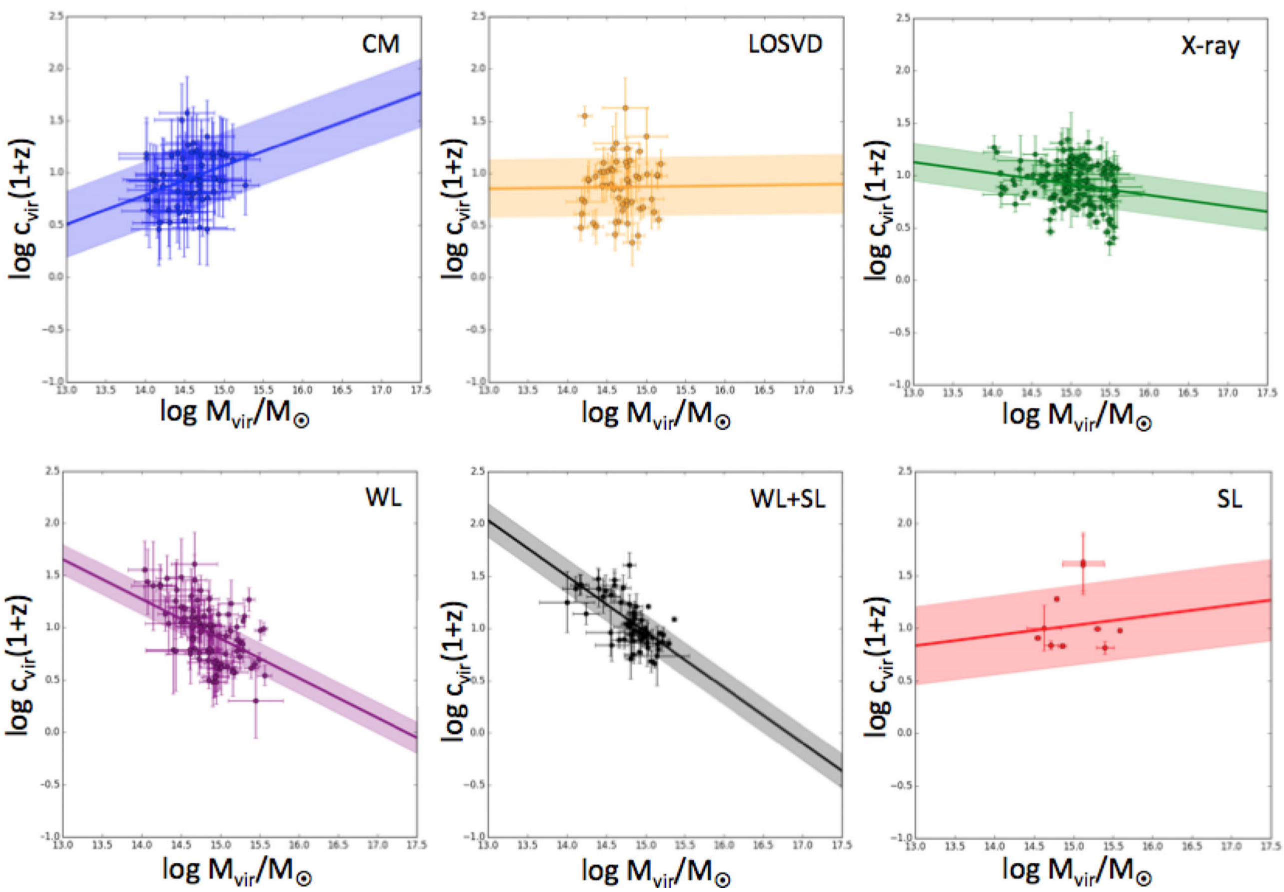
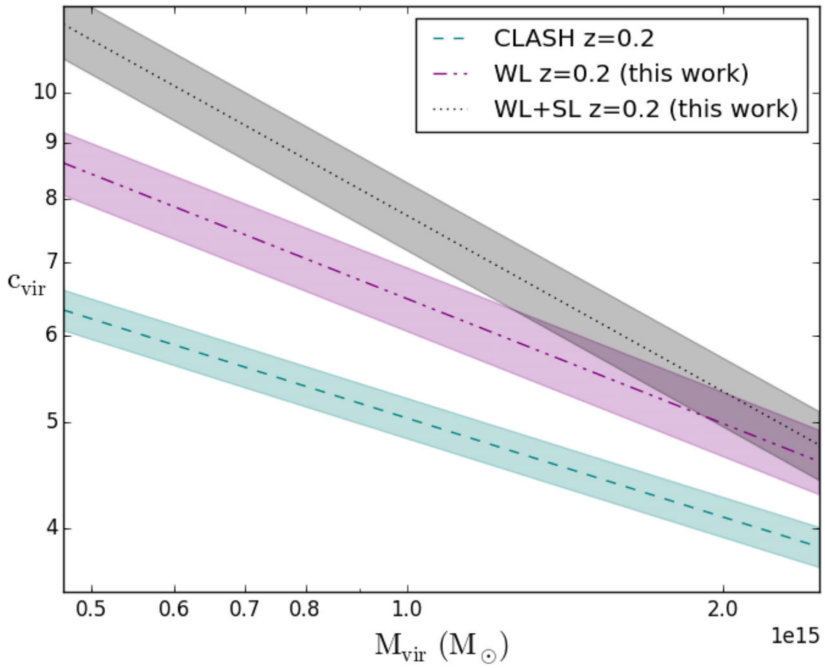


Figure 2. Upper left to lower right: individual fits to CM, LOSVD, X-ray, WL, WL+SL, and SL. The shaded regions represent the 1σ uncertainty in the best-fitting parameters, and include the intrinsic scatter, $\sigma_{\rm int}$. These relations are extrapolated over the full range of cluster masses for illustration purposes only.



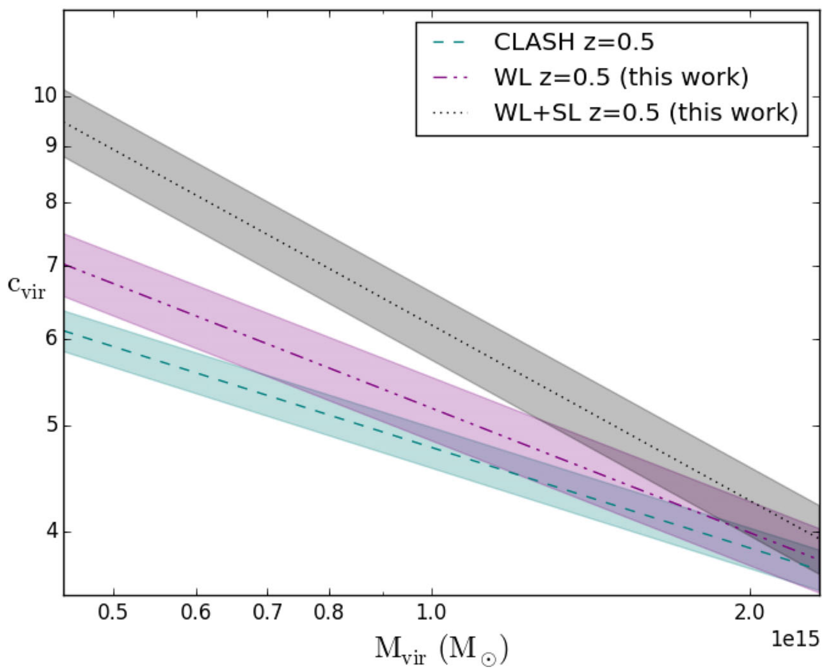


Figure 3. A direct comparison of the concentration–mass relations for lensing-based methods (WL and WL+SL) with results from CLASH (Merten et al. 2014). The top panel shows these relations at a redshift of $z = 0.2$, whereas the bottom panel is at a higher redshift $z = 0.5$ (approximately the average redshift of WL and WL+SL measurements in our sample). Conversion from c_{200} to $c_{\rm vir}$ was necessary for comparison purposes.

Though seemingly well-constrained, the bootstrap analysis reveals that our SL *c–M* relation is highly sensitive to the data set (due to the very small sample size), and so the best-fitting model parameters are likely untrustworthy.

General agreement between concentration and mass measurements of all methods can be seen in the range $10^{14.5}$–10^{15} $M_{\odot}$, which we also point out is the region we find most consistent with simulation results.

We also compare our results to the *c–M* relation studied by CLASH, which use a combined WL and SL technique for 19 X-ray selected galaxy clusters. The relation they fit,

$$c_{200} = A \left(\frac{1.37}{1+z}\right)^{B} \left(\frac{M_{200}}{8 \times 10^{14}\, h^{-1}\, M_{\odot}}\right)^{C} \quad (13)$$

with best-fitting values of $A = 3.66 \pm 0.16$, $B = -0.14 \pm 0.52$, and -0.32 ± 0.18, agrees well with projected simulations,

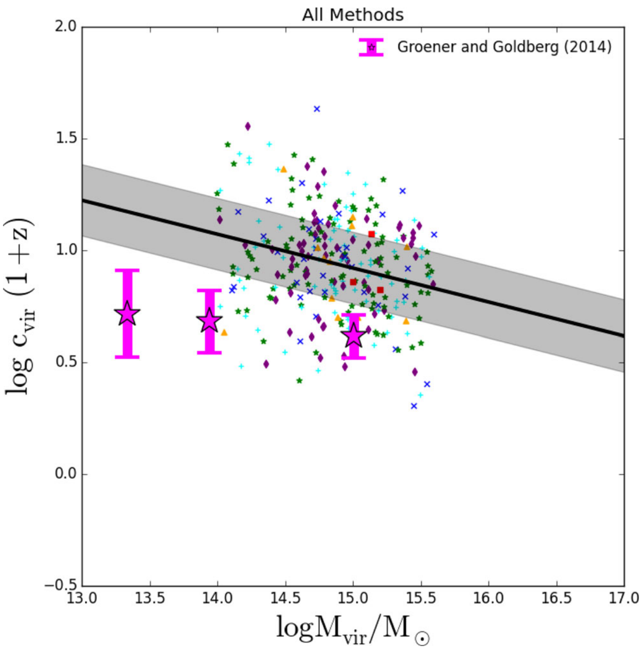


Figure 4. The concentration–mass relation observed for the full cluster data set. Colour scheme is the same, though cyan data points represent co-added cluster measurements where more than one category of reconstruction method was used. Error bars have been omitted here for clarity.

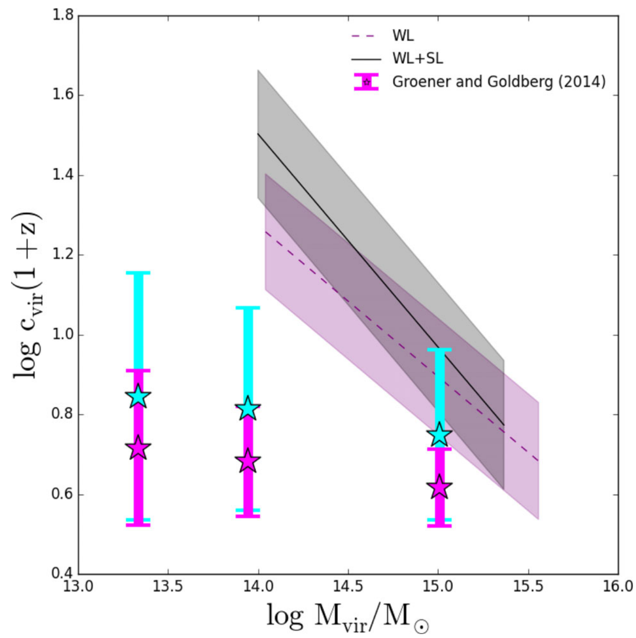


Figure 5. WL and WL+SL relations plotted with MultiDark MDR1 simulation results found by Groener & Goldberg (2014). Pink data points represent intrinsic 3D concentrations found in three mass bins, and cyan data points are corresponding 2D concentrations due to the projection of line-of-sight-oriented haloes.

after accounting for the X-ray selection function. Fig. 3 shows the comparison of the CLASH *c–M* relation to the lensing relations, WL and WL+SL. Our relations are significantly steeper, and have higher normalizations,[2] though it should be noted that we do not account for the lensing selection function, which would lower both parameters.

5 PROJECTION, SHAPE, AND A DIRECT COMPARISON OF RECONSTRUCTION TECHNIQUES

When regarded as a single population of measurements, a linear fit to the full data set of cluster mass and concentration pairs can be said to be, at face value, consistent with the results from simulations (albeit only marginally). In Fig. 4, we show the best-fitting linear model to the full data set, with results from Groener & Goldberg (2014) plotted in pink. We also find good agreement with Comerford & Natarajan (2007), who find a best-fitting model of $c_{\rm vir} = \frac{14.8\pm6.1}{(1+z)}(M_{\rm vir}/M_*)^{-0.14\pm0.12}$.

When the projection of triaxial haloes is taken into account, simulations become more consistent with the lensing observations. Fig. 5 compares WL and WL+SL relations to intrinsic 3D halo concentrations (pink) and to 2D concentrations due to line-of-sight projection (cyan) of MultiDark MDR1 simulation haloes found previously in Groener & Goldberg (2014). While projected haloes in this figure represent a perfectly elongated cluster sample, it is unlikely that *all* clusters with lensing analyses performed to date are oriented in this way. Thus, projected concentrations presented here can be interpreted as an upper limit, and constrains the ability of line-of-sight projection in easing the tension between simulations and lensing observations. Bahé, McCarthy & King (2012) also confirm that mock WL reconstructions of Millennium Simulation haloes produce concentrations of upwards of a factor of 2 for line-of-sight orientation, congruent with our analytical treatment. However, this fails to completely account for the factor of ∼3 (∼4) which we find for WL (WL+SL) clusters of mass $\sim10^{14}$ M$_\odot$.

In Fig. 6, we compare our lensing relations to ones obtained through dissipative *N*-body simulations found in the literature. Median simulation relations are shown (top panel) over the mass range defined by our lensing samples (1×10^{14}–3×10^{15} M$_\odot$), and are evaluated at a redshift corresponding to the average lensing redshift ($z = 0.5$) of our observational sample. Generally, the intrinsic scatter in concentration is not shown here, but is assumed to follow a lognormal distribution with a magnitude of $\Delta(\log c_{\rm vir}) \sim 0.18$ (Bullock et al. 2001). The relation found by Prada et al. (2012) shows the prominent upturn feature in concentration, while other relations are monotonically decreasing functions of mass. Simulation relations and ones obtained in this study stand in stark contrast with one another for lower mass clusters ($\lesssim 1\times10^{14}$ M$_\odot$); however, projection must be first be accounted for before any conclusions can be drawn. In the bottom panel, we compare analytical projections of simulation relations (using the method outlined in Groener & Goldberg 2014) with WL and WL+SL relations. For the purposes of understanding the magnitude of this effect, halo shapes are assumed to be well described by prolate spheroidal isodensities with axial ratios of $q = 0.65$ (Jing & Suto 2002), with major axes in the line-of-sight direction. Increased scatter in projected relations is expected to be caused by the actual distributions of shapes and orientations (which we do not account for here). Direct statistical comparisons of these relations are non-trivial, due to the differences in relation models. However, the projection of triaxial haloes was thought to be a sufficient explanation for fully describing the existence of differing observed and simulated cluster concentrations. It is clear that it is unlikely to be the sole contributing factor.

[2] Due to the addition of a third model parameter, the CLASH normalization is not directly comparable to ours. However, visual inspection of Fig. 3 shows that their value is certainly lower than ours.

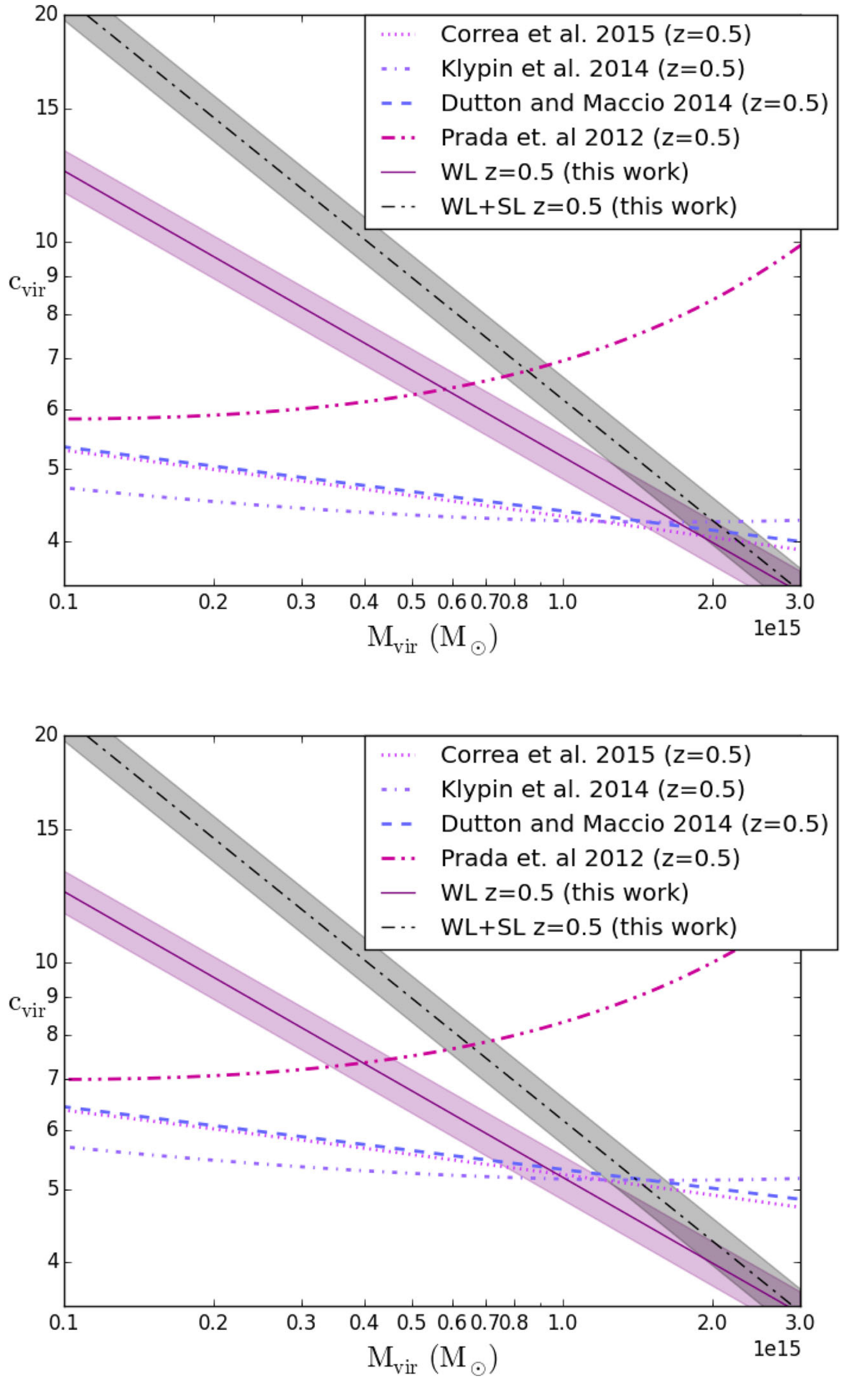


Figure 6. Top: concentration–mass relations from recent simulations (Prada et al. 2012; Dutton & Macciò 2014; Klypin et al. 2014; Correa et al. 2015b), along with lensing (WL and WL+SL) relations found in this study. All relations are evaluated at a redshift of $z = 0.5$. Bottom: simulation relations after projection effects have been taken into account. Haloes are assumed to be prolate spheroidal ($q = 0.65$), oriented along the line-of-sight direction.

We also observe that the concentration–mass relation for combined WL+SL is steeper than WL alone (though both relations are consistent at the 1σ level). Cluster halo isodensities which are more prolate in the inner regions can produce larger projected concentrations for line-of-sight haloes, and thus any method which makes use of information on this scale may stand to be biased high because of it. We find that the sign of this difference is in the right direction for this effect, and we cannot rule out shape as one of the underlying causes.

Though we do not possess a complete volume-limited sample of galaxy clusters for which all measurement methods have been performed, we can begin to understand any systematic effects present in clusters with concentrations and masses present for various combinations. In Fig. 7, we show clusters whose profiles have been estimated using the following pairwise combinations of methods: (i) WL and WL+SL, (ii) X-ray and WL, and (iii) CM and LOSVD. We do not detect any discernable trend in the way concentrations or masses are overestimated or underestimated in each comparison;

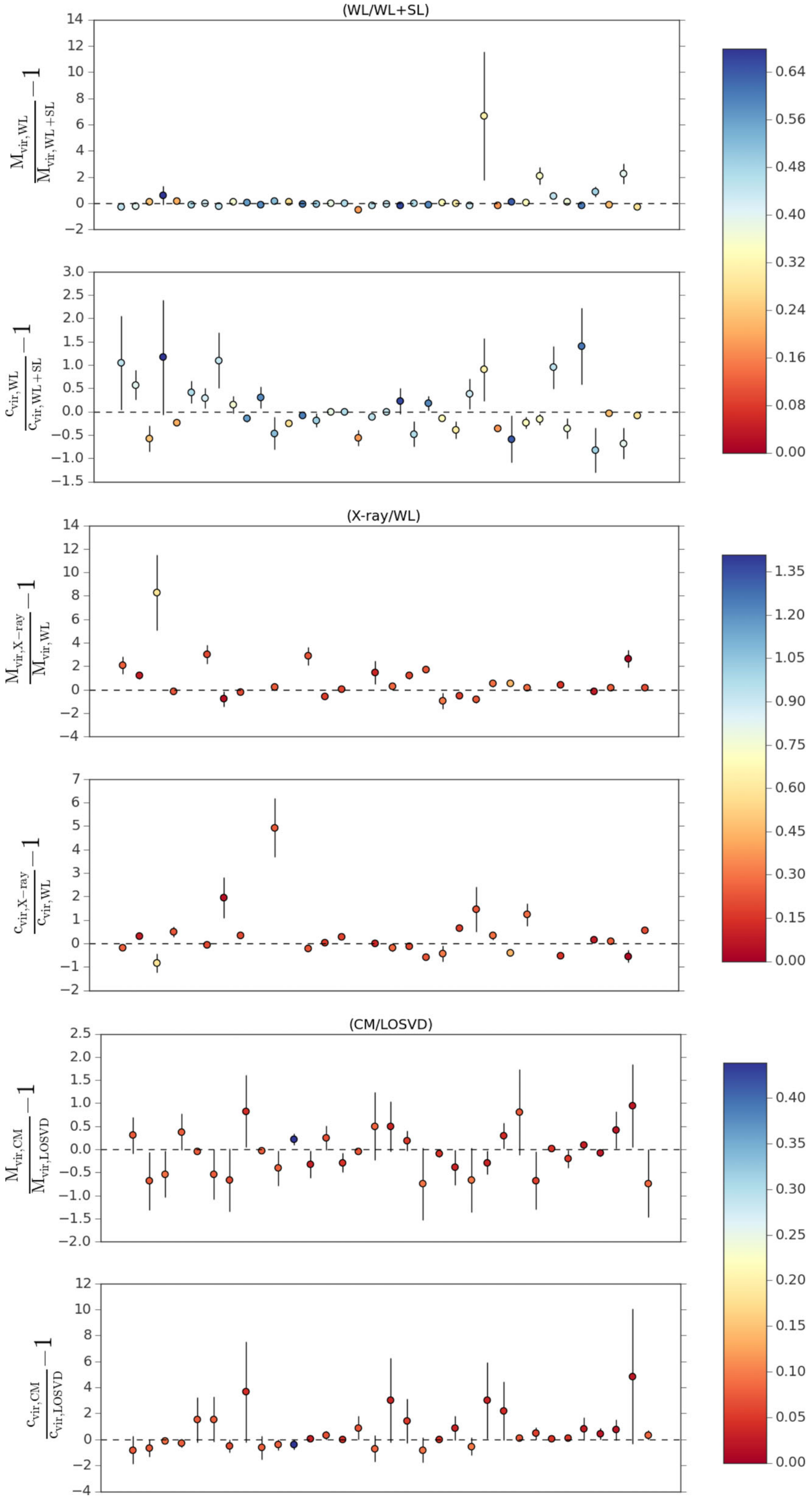


Figure 7. Comparisons of concentrations and masses for clusters measured in the following pairs of measurements: (i) WL and WL+SL, (ii) X-ray and WL, and (iii) CM and LOSVD. In all cases, the colour of the scatter point indicates redshift.

however, we show the magnitude of the potential discrepancy. WL and WL+SL mass measurements are generally in very good agreement with one another (with a few notable exceptions); however, differences in concentration do exist which are upwards of a factor of ∼2 in magnitude. X-ray and WL comparisons show discrepancies in mass (concentration) which can reach as high as ∼9 times (∼6 times) larger, with X-ray mass estimates tending to be larger than WL. Galaxy-based reconstruction techniques (LOSVD/CM) tend to agree less in both mass and concentration, with uncertainties which are quite large.

6 CONCLUSIONS AND DISCUSSIONS

In this paper, we have studied the observed concentration–mass relation using all known cluster measurements to date. We also model individual relations for the most commonly used reconstruction techniques. In the present section, we discuss our results of this study.

(i) There is an inconsistency between lensing (WL and WL+SL) concentrations and theoretical expectations from simulations. Low- to medium-mass lensing measurements ($\sim 10^{14}\,M_{\odot}$) are inconsistent with simulation results, even when projection is taken into account. It is very likely the case that some of this difference can be generated by the existence of a strong orientation bias in the lensing cluster population; however, the magnitude of this effect (quantified by previous studies) cannot completely explain the difference we observe here.

(ii) We find that the concentration–mass relation from SL clusters remains virtually unconstrained, due to the small size of the sample, as well as the insensitivity of SL reconstructions to the outer region of clusters.

(iii) The slope of the WL+SL relation is found to be higher (though still consistent) with WL alone over the lower half of the mass range, and may point to the existence of a new physical feature of clusters. However, when we only look at clusters with *both* measurements, we find no evidence that concentrations generated by WL+SL methods are in excess of WL. Most likely, this tells us that the selection effects for WL+SL are most likely the cause of this difference. Moreover, the intrinsic scatter of the concentration parameter on all mass scales is observed to be larger than the proposed difference in projected concentration due to shape, making this effect difficult to measure.

(iv) Lensing (WL and WL+SL) concentrations are systematically higher than those made with X-ray methods. In the mass range of $\sim(1–3) \times 10^{14}\,M_{\odot}$, the WL+SL relation is marginally inconsistent with X-ray measurements. Reasons for a flatter X-ray relation as compared to lensing methods are numerous. The gas distribution is rounder than the dark matter (DM) mass distribution, causing projection effects to be less severe for X-ray samples. X-ray masses are also biased low due to temperature and hydrostatic equilibrium biases. Consequently, for the same nominal value of mass ($M_{WL} = M_X$), X-ray clusters are likely more massive than clusters measured using WL. Because lower concentrations correlate with larger masses, lower concentrations are attributed to cluster mass bins, causing the X-ray *c–M* relation to have a lower normalization as compared to WL. Lastly, at very high masses, selection effects are less effective, since these clusters are likely to pass observational thresholds, and thus are included in samples. Due to less severe selection bias at larger mass ($\sim 10^{15}\,M_{\odot}$), as well as lower concentrations as compared to WL, a bias towards flatness is expected for the X-ray *c–M* relation.

(v) Out of all reconstruction methods, we also find that lensing (WL and WL+SL) relations are the *most* inconsistent with a power-law index of zero.

(vi) Methods which depend upon using galaxies as tracers of the mass show a neutral (LOSVD) or positive (CM) correlation between concentration and mass. The sensitivity of the slope of the CM *c–M* relation to the uncertainties is minimal. Disregarding uncertainties in either mass or concentration, we find a best-fitting slope and intercept of $m = 0.207$ and $b = -2.103$.

(vii) We find the *c–M* relation of our X-ray sample to be consistent with results from DM-only simulations, though with a higher normalization and slightly higher slope. However, direct comparison of these results with simulations which include baryons, feedback, and star formation is necessary. Rasia et al. (2013) performed such a study, and found that the dependence of the *c–M* relation on the radial range used to derive the relation, the baryonic physics included in simulations, and the selection of clusters based on X-ray luminosity all work to alleviate tensions between simulations and observations which existed previously. However, they also found that including AGN feedback brings the relation more in line with DM-only simulations, and it remains unclear whether or not all tensions between these relations have been identified and accounted for.

One potential source of error in the inference of the slope of the *c–M* relation which we do not account for in this study is the covariance of the mass and concentration measurements themselves (Sereno et al. 2015b). Auger et al. (2013) discovered that they were unable to constrain the slope of the *c–M* relation of a sample of 26 strongly lensed clusters with richness information, due to the intrinsic covariance of their mass and concentration estimates, in addition to a limited dynamic range of halo masses. Furthermore, improper modelling of the distribution of halo masses can also significantly alter the inferred relation (i.e. it is sensitive to the prior).

Selection effects can strongly steepen the slope of the *c–M* relation, especially for lensing clusters (Meneghetti et al. 2014; Merten et al. 2014). The slopes of relations for clusters from CLASH, LOCUSS, SGAS, and a high-redshift sample (also included in this study) were all found to be much steeper than that of the relation characterizing DM-only clusters (Sereno et al. 2015b). For fixed mass, the most highly concentrated clusters are most likely to show SL features, and thus are most likely to be included in SL selected samples (Oguri & Blandford 2009). In all cases, the selection process of clusters tends to prefer overconcentrated haloes, and depends strongly on observational selection thresholds (Einstein radius, X-ray luminosity, morphology, etc.).

Another consideration is the mismodelling of the halo profile. Recently, *N*-body simulations have shown that Einasto profiles provide an even more accurate representation of the density profiles of DM haloes compared to the NFW profile (Dutton & Macciò 2014; Klypin et al. 2014; Meneghetti et al. 2014). Sereno, Fedeli & Moscardini (2015a) find that WL masses and concentrations for very massive structures ($\gtrsim 10^{15}\,h^{-1}\,M_{\odot}$) can be overestimated and underestimated, respectively, by about ∼10 per cent, if an NFW model is incorrectly assumed. Though this does not fix the mismatch in the concentration parameter we have discussed here, it could perhaps artificially steepen the overall slope of the relation by reducing the concentrations of the most massive clusters.

Another plausible explanation for the existence of this new overconcentration discrepancy for clusters is that DM-only simulations lack important cluster physics which is present in real clusters. Feedback from AGN and supernovae, and gas cooling are mechanisms which may cause (or prevent) further concentration of DM within the cores of clusters, and have a strong effect on their lensing efficiency (Puchwein et al. 2005; Rozo et al. 2008; Wambsganss, Ostriker & Bode 2008). Mead et al. (2010) find that SL cross-sections for high-mass clusters are boosted by up to two to three times, when including gas cooling with star formation in simulations.

Furthermore, they find that by adding AGN feedback into the mix, this cross-section (and also the concentration parameter) decreases, as energy is injected back into the baryonic component.

There is a strong need to obtain low-mass ($<1 \times 10^{14}\,M_{\odot}$) lensing measurements, since our most contentious conclusion is that, if the relation we have found holds in the galaxy group region, we expect cluster concentrations to be even less consistent with theory than they already are. Clearly, this trend cannot continue indefinitely, but it remains to be seen how this model breaks down. An ideal study would contain a large, complete, and volume-limited sample of clusters, which can be studied in each reconstruction method. In this way, we could hope to eliminate the dependence of the selection function of clusters on the concentration–mass relation we would measure. Lastly, since selection effects are quite difficult to model, it is worth extending this study to as large of a sample as possible. Heterogeneous data sets (such as the one compiled in this study) have the ability to compensate for selection biases (Gott et al. 2001; Piffaretti et al. 2011; Sereno & Ettori 2015).

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APPENDIX A: FULL OBSERVATIONAL DATA SET[3]

We discuss here the details of our measurement aggregation procedure.

(i) The overwhelming majority of measurements were reported in the one or both of the conventions shown in Table A1 (200 and virial). Whenever possible, we report measurements made by the original paper, rather than relying on the conversion procedure outlined in Hu & Kravtsov (2003). For papers which report their results for only one (or neither) of the previously mentioned conventions, we apply the aforementioned conversion process.

(ii) There are numerous definitions (and approximations) used throughout the literature for $\delta_{\rm vir}$ (also represented as $\Delta_{\rm v}$). All measurements reported using the virial overdensity convention have been converted to a consistent definition (Bryan & Norman 1998), before being reported in Table A1:

$$\Delta_{\rm v} = 18\pi^2 + 82x - 39x^2 \quad \text{(A1)}$$

[3] The raw data has been made publicly available (format: csv, xlsx) here: http://www.physics.drexel.edu/~groenera/

Table A1. Cluster concentrations and masses.

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_\odot$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_\odot$)	Ref.	δ	Ω_m/Ω_Λ/h
Virgo	0.003	12 30 47.3	+12 20 13	X-ray	$2.8^{+0.7}_{-0.7}$	$4.2^{+0.5}_{-0.5}$	$3.8^{+0.9}_{-0.9}$	$5.4^{+0.9}_{-0.9}$	McLaughlin (1999)	200	0.3/0.7/0.7
Virgo	0.003	12 30 47.3	+12 20 13	CM	0.92	2.4	1.35	3.87	Rines & Diaferio (2006)	200	0.3/0.7/None
NGC 4636	0.0031	12 42 49.8	+02 41 16	CM	8.64	0.16	11.41	0.19	Rines & Diaferio (2006)	200	0.3/0.7/None
NGC 5846	0.006	15 06 29.3	+01 36 20	CM	8.29	0.5	10.95	0.59	Rines & Diaferio (2006)	200	0.3/0.7/None
NGC 5044	0.009	13 15 24.0	−16 23 08	X-ray	$8.4^{+0.2}_{-0.2}$	$0.322^{+0.009}_{-0.009}$	$11.1^{+0.3}_{-0.3}$	$0.375^{+0.011}_{-0.011}$	Gastaldello et al. (2007b)	1250	0.3/0.7/0.7
Abell 1060	0.01	10 36 41.8	−27 31 28	LOSVD	$10.67^{+0.93}_{-2.52}$	$3.57^{+0.34}_{-0.31}$	$13.98^{+1.22}_{-3.31}$	$4.09^{+0.39}_{-0.36}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 1060	0.01	10 36 41.8	−27 31 28	X-ray	$10.27^{+2.45}_{-2.17}$	$9.81^{+1.32}_{-1.16}$	$13.7^{+3.27}_{-2.89}$	$11.39^{+1.53}_{-1.35}$	Babyk, Del Popolo & Vavilova (2014)	200	0.27/0.73/0.73
Abell 1060	0.01	10 36 41.8	−27 31 28	LOSVD	$10.6^{+17.1}_{-7.7}$	$3.8^{+0.4}_{-0.7}$	$14.0^{+22.0}_{-10.0}$	$4.4^{+1.1}_{-1.0}$	Łokas et al. (2006)	Virial	0.3/0.7/0.7
Abell 1060	0.01	10 36 41.8	−27 31 28	X-ray	$8.4^{+0.6}_{-0.6}$	–	$11.1^{+0.8}_{-0.8}$	–	Xu, Jin & Wu (2001)	200	0.3/0.7/0.5
Abell 3526	0.011	12 48 47.9	−41 18 28	X-ray	$10.43^{+0.81}_{-0.83}$	$8.26^{+0.72}_{-0.28}$	$13.9^{+1.08}_{-1.11}$	$9.58^{+0.84}_{-0.32}$	Babyk et al. (2014)	200	0.27/0.73/0.73
NGC 1550	0.0124	04 19 37.9	+02 24 34	X-ray	$13.0^{+0.8}_{-0.8}$	$0.274^{+0.011}_{-0.011}$	$17.0^{+1.0}_{-1.0}$	$0.311^{+0.014}_{-0.014}$	Gastaldello et al. (2007b)	2500	0.3/0.7/0.7
Abell S805	0.0139	18 47 20.0	−63 20 13	LOSVD	$6.69^{+1.07}_{-2.3}$	$2.35^{+0.33}_{-0.34}$	$8.85^{+1.42}_{-3.04}$	$2.79^{+0.39}_{-0.4}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
NGC 2563	0.0149	08 20 35.7	+21 04 04	X-ray	$7.5^{+2.7}_{-2.7}$	$0.224^{+0.06}_{-0.06}$	$9.9^{+3.4}_{-3.4}$	$0.263^{+0.078}_{-0.078}$	Gastaldello et al. (2007b)	2500	0.3/0.7/0.7
Abell 262	0.0163	01 52 46.8	+36 09 05	LOSVD	$7.94^{+1.91}_{-2.19}$	$2.14^{+0.37}_{-0.21}$	$10.45^{+2.52}_{-2.88}$	$2.51^{+0.43}_{-0.25}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 262	0.0163	01 52 46.8	+36 09 05	X-ray	$10.11^{+1.02}_{-0.98}$	$2.93^{+0.73}_{-0.67}$	$13.46^{+1.36}_{-1.3}$	$3.4^{+0.85}_{-0.78}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 262	0.0163	01 52 46.8	+36 09 05	LOSVD	$3.1^{+8.7}_{-2.4}$	$2.1^{+0.2}_{-0.6}$	$4.2^{+11.3}_{-3.2}$	$2.7^{+1.2}_{-1.0}$	Łokas et al. (2006)	Virial	0.3/0.7/0.7
Abell 262	0.0163	01 52 46.8	+36 09 05	X-ray	$6.7^{+0.5}_{-0.5}$	$0.927^{+0.077}_{-0.077}$	$8.8^{+0.7}_{-0.7}$	$1.099^{+0.099}_{-0.099}$	Gastaldello et al. (2007b)	2500	0.3/0.7/0.7
Abell 262	0.0163	01 52 46.8	+36 09 05	X-ray	$5.29^{+0.43}_{-0.43}$	–	$7.03^{+0.55}_{-0.55}$	–	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 262	0.0163	01 52 46.8	+36 09 05	X-ray	$12.9^{+1.1}_{-1.1}$	–	$16.8^{+1.4}_{-1.4}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 194	0.018	01 25 40.8	−01 24 26	CM	6.27	1.09	8.3	1.3	Rines et al. (2003)	200/turn	0.3/0.7/None
NGC 533	0.0185	01 25 31.3	+01 45 33	X-ray	$13.0^{+1.0}_{-1.0}$	$0.202^{+0.01}_{-0.01}$	$16.9^{+1.3}_{-1.3}$	$0.229^{+0.012}_{-0.012}$	Gastaldello et al. (2007b)	1250	0.3/0.7/0.7
MKW 4	0.02	12 03 57.7	+01 53 18	LOSVD	$7.91^{+1.05}_{-2.75}$	$1.55^{+0.23}_{-0.21}$	$10.4^{+1.38}_{-3.62}$	$1.81^{+0.27}_{-0.25}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
MKW 4	0.02	12 03 57.7	+01 53 18	X-ray	$19.93^{+3.15}_{-3.17}$	$2.22^{+1.84}_{-2.1}$	$26.19^{+4.14}_{-4.17}$	$2.48^{+2.06}_{-2.35}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MKW 4	0.02	12 03 57.7	+01 53 18	X-ray	$9.4^{+0.6}_{-0.6}$	$0.54^{+0.026}_{-0.026}$	$12.3^{+0.8}_{-0.8}$	$0.624^{+0.033}_{-0.033}$	Gastaldello et al. (2007b)	1250	0.3/0.7/0.7
MKW 4	0.02	12 03 57.7	+01 53 18	X-ray	$3.85^{+0.22}_{-0.22}$	$1.11^{+0.15}_{-0.15}$	$5.17^{+0.28}_{-0.28}$	$1.37^{+0.2}_{-0.2}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
MKW 4	0.02	12 03 57.7	+01 53 18	CM	11.6	2.27	15.13	2.59	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 3581	0.0218	14 07 28.1	−27 00 55	LOSVD	$9.32^{+0.83}_{-4.62}$	$1.53^{+0.37}_{-0.27}$	$12.2^{+1.09}_{-6.05}$	$1.77^{+0.43}_{-0.31}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 3581	0.0218	14 07 28.1	−27 00 55	X-ray	$9.81^{+6.3}_{-5.4}$	$0.39^{+2.23}_{-0.27}$	$12.8^{+8.1}_{-6.9}$	$0.45^{+2.76}_{-0.31}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
Abell 1367	0.022	11 44 36.5	+19 45 32	CM	16.9	5.46	21.9	6.11	Rines et al. (2003)	200/turn	0.3/0.7/None
IC 1860	0.0223	02 49 33.7	−31 11 21	X-ray	$7.2^{+0.6}_{-0.6}$	$0.431^{+0.036}_{-0.036}$	$9.5^{+0.8}_{-0.8}$	$0.507^{+0.046}_{-0.046}$	Gastaldello et al. (2007b)	1250	0.3/0.7/0.7
MKW 11	0.0228	13 29 31.2	+11 47 19	CM	4.29	0.46	5.75	0.57	Rines & Diaferio (2006)	200	0.3/0.7/None
NGC 5129	0.023	13 24 10.0	+13 58 36	X-ray	$11.2^{+1.8}_{-1.8}$	$0.135^{+0.017}_{-0.017}$	$14.6^{+2.3}_{-2.3}$	$0.154^{+0.02}_{-0.02}$	Gastaldello et al. (2007b)	1250	0.3/0.7/0.7
Abell 1656	0.023	12 59 48.7	+27 58 50	WL	$2.55^{+1.17}_{-0.84}$	$8.9^{+3.61}_{-2.26}$	$3.57^{+1.54}_{-1.12}$	$12.03^{+5.96}_{3.46}$	Okabe et al. (2014)	Virial/200/500	0.27/0.73/None
Abell 1656	0.023	12 59 48.7	+27 58 50	WL	$3.84^{+13.16}_{-1.84}$	$18.8^{+6.5}_{-5.6}$	$5.17^{+17.72}_{-2.48}$	$23.62^{+8.17}_{-7.04}$	Kubo et al. (2007)	200	0.3/0.7/None
Abell 1656	0.023	12 59 48.7	+27 58 50	WL	$5.0^{+3.2}_{-2.5}$	$7.3^{+6.1}_{-3.0}$	$6.7^{+4.3}_{-3.4}$	$8.9^{+7.4}_{-3.7}$	Gavazzi et al. (2009)	200	0.3/0.7/0.7
Abell 1656	0.023	12 59 48.7	+27 58 50	X-ray	$1.37^{+0.25}_{-0.27}$	$41.94^{+4.72}_{-3.92}$	$1.98^{+0.36}_{-0.39}$	$62.86^{+7.07}_{-5.88}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1656	0.023	12 59 48.7	+27 58 50	CM	10.0	11.2	13.1	12.9	Rines et al. (2003)	200/turn	0.3/0.7/None
Abell 1656	0.023	12 59 48.7	+27 58 50	LOSVD	7.0	$11.8^{+0.3}_{-0.3}$	9.3	$13.9^{+4.0}_{-4.0}$	Łokas & Mamon (2003)	Virial	0.3/0.7/0.7
Abell 779	0.0233	09 19 49.2	+33 45 37	LOSVD	$6.1^{+4.0}_{-4.0}$	1.65	$8.0^{+5.1}_{-5.1}$	1.97	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 779	0.0233	09 19 49.2	+33 45 37	LOSVD	$4.35^{+0.8}_{-1.47}$	$1.29^{+0.15}_{-0.24}$	$5.82^{+1.08}_{-1.97}$	$1.59^{+0.18}_{-0.3}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 779	0.0233	09 19 49.2	+33 45 37	CM	24.41	2.66	31.46	2.94	Rines & Diaferio (2006)	200	0.3/0.7/None
NGC 4325	0.0257	12 23 06.7	+10 37 16	CM	4.87	0.21	6.49	0.26	Rines & Diaferio (2006)	200	0.3/0.7/None
NGC 4325	0.0257	12 23 06.7	+10 37 16	X-ray	$8.6^{+1.1}_{-1.1}$	$0.301^{+0.054}_{-0.054}$	$11.2^{+1.4}_{-1.4}$	$0.349^{+0.065}_{-0.065}$	Gastaldello et al. (2007b)	2500	0.3/0.7/0.7
RXC J2214.8+1350	0.0264	22 14 52.7	+13 50 48	CM	6.85	0.4	9.03	0.47	Rines & Diaferio (2006)	200	0.3/0.7/None
RXC J2315.7−0222	0.0267	23 15 45.2	−02 22 37	X-ray	$11.66^{+1.19}_{-1.19}$	$0.442^{+0.036}_{-0.036}$	$15.18^{+1.55}_{-1.55}$	$0.504^{+0.041}_{-0.041}$	Démoclès et al. (2010)	500	0.3/0.7/0.7
MKW 8	0.0271	14 40 38.2	+03 28 35	X-ray	$15.28^{+3.14}_{-3.16}$	$7.47^{+1.48}_{-2.57}$	$20.11^{+4.13}_{-4.16}$	$8.45^{+1.67}_{-2.91}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MKW 8	0.0271	14 40 38.2	+03 28 35	CM	5.27	0.56	7.0	0.68	Rines & Diaferio (2006)	200	0.3/0.7/None
NGC 6338	0.0286	17 15 23.0	+57 24 40	CM	7.46	2.16	9.8	2.54	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 539	0.029	05 16 37.3	+06 26 16	LOSVD	$9.81^{+1.26}_{-3.55}$	$3.25^{+0.49}_{-0.46}$	$12.8^{+1.65}_{-4.64}$	$3.73^{+0.57}_{-0.53}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 539	0.029	05 16 37.3	+06 26 16	X-ray	$10.37^{+2.04}_{-2.01}$	$8.38^{+1.46}_{-1.77}$	$13.74^{+2.7}_{-2.66}$	$9.69^{+1.69}_{-2.05}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 539	0.029	05 16 37.3	+06 26 16	CM	14.7	3.63	19.0	4.09	Rines et al. (2003)	200/turn	0.3/0.7/None
Abell 4038	0.03	23 47 43.2	−28 08 29	X-ray	$9.38^{+1.03}_{-1.01}$	$8.26^{+1.18}_{-0.92}$	$12.46^{+1.37}_{-1.34}$	$9.62^{+1.37}_{-1.07}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2197	0.03	16 28 10.4	+40 54 26	CM	1.35	0.99	1.91	1.45	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2199	0.03	16 28 38.0	+39 32 55	X-ray	$6.27^{+0.25}_{-0.26}$	$12.38^{+2.18}_{-1.29}$	$8.42^{+0.34}_{-0.35}$	$14.91^{+2.63}_{-1.55}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2199	0.03	16 28 38.0	+39 32 55	CM	4.02	3.7	5.39	4.62	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2199	0.03	16 28 38.0	+39 32 55	CM	7.47	4.67	9.8	5.47	Rines et al. (2003)	200/turn	0.3/0.7/None
Abell 2199	0.03	16 28 38.0	+39 32 55	LOSVD	$7.79^{+11.26}_{-6.02}$	$6.0^{+1.5}_{-1.8}$	$10.4^{+14.6}_{-7.9}$	$7.1^{+3.4}_{-2.4}$	Łokas et al. (2006)	Virial	0.3/0.7/0.7
Abell 2199	0.03	16 28 38.0	+39 32 55	LOSVD	4.0	5.0	5.0	6.0	Kelson et al. (2002)	200	0.3/0.7/0.75
Abell 2199	0.03	16 28 38.0	+39 32 55	X-ray	$8.2^{+0.4}_{-0.4}$	–	$10.7^{+0.5}_{-0.5}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 2199	0.03	16 28 38.0	+39 32 55	X-ray	10.0	–	13.0	–	Markevitch et al. (1999)	200	0.3/0.7/0.50
Zw1665	0.0302	08 23 11.5	+04 21 21.6	CM	11.38	0.9	14.8	1.03	Rines & Diaferio (2006)	200	0.3/0.7/None

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_\odot$)	c_{vir}	M_{vir} (10^{14} M$_\odot$)	Ref.	δ	Ω_m/Ω_Λ/h
Abell 2634	0.031	23 38 25.7	+27 00 45	LOSVD	$7.37^{+0.89}_{-2.03}$	$4.95^{+0.62}_{-0.74}$	$9.67^{+1.17}_{-2.66}$	$5.81^{+0.73}_{-0.87}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2634	0.031	23 38 25.7	+27 00 45	X-ray	$11.38^{+2.17}_{-2.16}$	$11.88^{+2.15}_{-1.27}$	$15.04^{+2.87}_{-2.85}$	$13.65^{+2.47}_{-1.46}$	Babyk et al. (2014)	200	0.27/0.73/0.73
IIIZw54	0.0311	03 41 17.6	+15 23 44	X-ray	$11.25^{+1.33}_{-1.38}$	$8.81^{+1.04}_{-0.93}$	$14.87^{+1.76}_{-1.82}$	$10.13^{+1.2}_{-1.07}$	Babyk et al. (2014)	200	0.27/0.73/0.73
NGC 6107	0.0311	16 17 20.1	+34 54 07	CM	6.96	1.46	9.16	1.72	Rines & Diaferio (2006)	200	0.3/0.7/None
ESO 5520200	0.0314	04 54 52.0	−18 06 56	X-ray	$5.8^{+0.6}_{-0.6}$	$1.089^{+0.146}_{-0.146}$	$7.6^{+0.8}_{-0.8}$	$1.303^{+0.187}_{-0.187}$	Gastaldello et al. (2007b)	1250	0.3/0.7/0.7
AWM 4	0.0317	16 04 57.0	+23 55 14	X-ray	$7.21^{+1.02}_{-1.03}$	$6.55^{+0.85}_{-0.37}$	$9.64^{+1.36}_{-1.38}$	$7.79^{+1.01}_{-0.44}$	Babyk et al. (2014)	200	0.27/0.73/0.73
AWM 4	0.0317	16 04 57.0	+23 55 14	X-ray	$6.8^{+0.6}_{-0.6}$	$1.374^{+0.156}_{-0.156}$	$8.9^{+0.8}_{-0.8}$	$1.622^{+0.196}_{-0.196}$	Gastaldello et al. (2007b)	1250	0.3/0.7/0.7
Abell 496	0.0329	04 33 38.4	−13 15 33	LOSVD	$3.53^{+0.47}_{-0.75}$	$3.75^{+0.55}_{-0.46}$	$4.75^{+0.63}_{-1.01}$	$4.73^{+0.7}_{-0.58}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 496	0.0329	04 33 38.4	−13 15 33	X-ray	$11.26^{+0.83}_{-0.81}$	$9.1^{+1.19}_{-1.27}$	$14.88^{+1.1}_{-1.07}$	$10.46^{+1.37}_{-1.46}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 496	0.0329	04 33 38.4	−13 15 33	CM	14.0	3.13	18.1	3.53	Rines et al. (2003)	200/turn	0.3/0.7/None
Abell 496	0.0329	04 33 38.4	−13 15 33	LOSVD	$6.9^{+12.9}_{-4.8}$	$4.5^{+0.3}_{-0.7}$	$9.3^{+16.7}_{-6.3}$	$5.3^{+1.1}_{-1.1}$	Łokas et al. (2006)	Virial	0.3/0.7/0.7
Abell 496	0.0329	04 33 38.4	−13 15 33	X-ray	$10.4^{+0.6}_{-0.6}$	–	$13.5^{+0.8}_{-0.8}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 496	0.0329	04 33 38.4	−13 15 33	X-ray	6.0	–	8.0	–	Markevitch et al. (1999)	200	0.3/0.7/0.50
Abell 1314	0.0334	11 34 50.5	+49 03 28	LOSVD	$6.52^{+1.09}_{-2.03}$	$2.93^{+0.52}_{-0.4}$	$8.57^{+1.43}_{-2.67}$	$3.47^{+0.62}_{-0.47}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 1314	0.0334	11 34 50.5	+49 03 28	CM	10.95	1.91	14.23	2.18	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2063	0.0337	15 23 01.8	+08 38 22	LOSVD	$12.35^{+1.19}_{-4.37}$	$5.21^{+1.04}_{-0.67}$	$16.02^{+1.55}_{-5.67}$	$5.92^{+1.18}_{-0.77}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2063	0.0337	15 23 01.8	+08 38 22	X-ray	$7.36^{+0.38}_{-0.33}$	$10.3^{+1.94}_{-1.29}$	$9.82^{+0.51}_{-0.44}$	$12.22^{+2.3}_{-1.53}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2063	0.0337	15 23 01.8	+08 38 22	X-ray	$5.1^{+0.3}_{-0.3}$	–	$6.8^{+0.4}_{-0.4}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
2A 0335+096	0.0347	03 38 35.3	+09 57 55	X-ray	$8.18^{+18.83}_{-7.2}$	$1.4^{+115.5}_{-1.0}$	$10.7^{+23.9}_{-9.3}$	$1.6^{+175.4}_{-1.2}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
Abell 2052	0.0348	15 16 44.0	+07 01 07	LOSVD	$9.41^{+1.48}_{-3.68}$	$2.48^{+0.42}_{-0.42}$	$12.26^{+1.92}_{-4.8}$	$2.86^{+0.49}_{-0.49}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2052	0.0348	15 16 44.0	+07 01 07	X-ray	$10.33^{+1.39}_{-1.33}$	$9.12^{+1.26}_{-1.72}$	$13.66^{+1.84}_{-1.76}$	$10.54^{+1.46}_{-1.99}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2052	0.0348	15 16 44.0	+07 01 07	X-ray	$9.7^{+0.7}_{-0.7}$	–	$12.6^{+0.9}_{-0.9}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 1142	0.035	11 00 48.9	+10 33 35	LOSVD	$6.9^{+2.0}_{-2.0}$	1.92	$9.1^{+2.5}_{-2.5}$	2.26	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1142	0.035	11 00 48.9	+10 33 35	CM	28.44	3.09	36.47	3.39	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2147	0.035	16 02 18.7	+16 01 12	X-ray	$10.46^{+3.81}_{-4.27}$	$10.93^{+1.27}_{-1.28}$	$13.83^{+5.04}_{-5.65}$	$12.62^{+1.47}_{-1.48}$	Babyk et al. (2014)	200	0.27/0.73/0.73
ESO 3060170	0.0358	05 40 06.6	−40 50 12	X-ray	$6.7^{+0.8}_{-0.8}$	$1.542^{+0.397}_{-0.397}$	$8.8^{+1.0}_{-1.0}$	$1.82^{+0.487}_{-0.487}$	Gastaldello et al. (2007b)	2500	0.3/0.7/0.7
RGH89 080	0.0379	13 20 24.9	+33 12 17	X-ray	$7.6^{+0.7}_{-0.7}$	$0.241^{+0.012}_{-0.012}$	$9.9^{+0.9}_{-0.9}$	$0.282^{+0.016}_{-0.016}$	Gastaldello et al. (2007b)	500	0.3/0.7/0.7
MKW 9	0.0382	15 32 29.3	+04 40 54	X-ray	$5.41^{+0.67}_{-0.67}$	$1.2^{+0.3}_{-0.3}$	$7.14^{+0.86}_{-0.86}$	$1.44^{+0.38}_{-0.38}$	Pointecouteau, Arnaud & Pratt (2005)	200	0.3/0.7/0.7
MKW 9	0.0382	15 32 29.3	+04 40 54	X-ray	$5.4^{+0.7}_{-0.7}$	1.2	$7.1^{+0.9}_{-0.9}$	1.44	Pratt & Arnaud (2005)	200	0.3/0.7/0.7
Abell 3571	0.039	13 47 28.4	−32 50 59	LOSVD	$8.05^{+1.46}_{-2.41}$	$9.26^{+1.03}_{-1.58}$	$10.52^{+1.9}_{-3.15}$	$10.77^{+1.19}_{-1.84}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 3571	0.039	13 47 28.4	−32 50 59	X-ray	$8.92^{+1.98}_{-2.1}$	$30.41^{+3.75}_{-3.84}$	$11.82^{+2.62}_{-2.78}$	$35.49^{+4.38}_{-4.48}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 3571	0.039	13 47 28.4	−32 50 59	X-ray	$4.9^{+0.2}_{-0.2}$	–	$6.5^{+0.3}_{-0.3}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 1139	0.0398	10 58 04.3	+01 29 56	LOSVD	$2.57^{+0.37}_{-0.91}$	$1.19^{+0.18}_{-0.26}$	$3.49^{+0.5}_{-1.24}$	$1.56^{+0.24}_{-0.34}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2657	0.04	23 44 51.0	+09 08 40	X-ray	$5.49^{+0.83}_{-0.81}$	$9.89^{+2.17}_{-1.28}$	$7.38^{+1.12}_{-1.09}$	$12.05^{+2.64}_{-1.56}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 576	0.04	07 21 24.1	+55 44 20	LOSVD	$3.52^{+0.61}_{-0.92}$	$6.47^{+1.04}_{-0.81}$	$4.72^{+0.82}_{-1.23}$	$8.15^{+1.31}_{-1.02}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 576	0.04	07 21 24.1	+55 44 20	X-ray	$4.28^{+0.83}_{-0.81}$	$21.11^{+2.16}_{-1.19}$	$5.8^{+1.12}_{-1.1}$	$26.41^{+2.7}_{-1.49}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 576	0.04	07 21 24.1	+55 44 20	CM	10.9	9.51	14.1	10.85	Rines et al. (2003)	200/turn	0.3/0.7/None
Abell 2589	0.041	23 23 53.5	+16 48 32	CM	6.34	0.99	8.32	1.17	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2589	0.041	23 23 53.5	+16 48 32	X-ray	$4.9^{+2.4}_{-2.4}$	–	$6.5^{+3.1}_{-3.1}$	–	Buote & Lewis (2004)	200	0.3/0.7/0.7
Abell 2589	0.041	23 23 53.5	+16 48 32	X-ray	$6.27^{+0.75}_{-0.72}$	$10.05^{+1.27}_{-1.29}$	$8.39^{+1.0}_{-0.96}$	$12.08^{+1.53}_{-1.55}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2107	0.0411	15 39 38.4	+21 47 20	LOSVD	$11.87^{+1.61}_{-4.76}$	$2.42^{+0.55}_{-0.38}$	$15.36^{+2.08}_{-6.16}$	$2.75^{+0.63}_{-0.44}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2593	0.0415	23 24 20.2	+14 39 04	LOSVD	$2.59^{+0.49}_{-0.76}$	$1.57^{+0.28}_{-0.2}$	$3.52^{+0.66}_{-1.04}$	$2.07^{+0.37}_{-0.27}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2593	0.0415	23 24 20.2	+14 39 04	CM	11.64	3.44	15.07	3.91	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 295	0.0424	02 02 19.9	−01 07 13	CM	1.38	0.27	1.94	0.39	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 160	0.0432	01 12 51.4	+15 30 54	CM	10.14	0.91	13.16	1.04	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1983	0.0442	14 52 44.0	+16 44 46	LOSVD	$3.54^{+0.69}_{-1.49}$	$1.19^{+0.28}_{-0.26}$	$4.74^{+0.93}_{-1.99}$	$1.5^{+0.36}_{-0.33}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 1983	0.0442	14 52 44.0	+16 44 46	X-ray	$3.83^{+0.71}_{-0.71}$	$1.59^{+0.61}_{-0.61}$	$5.1^{+0.91}_{-0.91}$	$1.97^{+0.82}_{-0.82}$	Pointecouteau et al. (2005)	200	0.3/0.7/0.7
Abell 119	0.0446	00 56 18.3	−01 13 00	LOSVD	$3.4^{+0.58}_{-0.91}$	$3.97^{+0.57}_{-0.59}$	$4.56^{+0.78}_{-1.23}$	$5.02^{+0.73}_{-0.75}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 119	0.0446	00 56 18.3	−01 13 00	X-ray	$4.12^{+0.25}_{-0.23}$	$24.06^{+4.16}_{-2.18}$	$5.59^{+0.34}_{-0.31}$	$30.2^{+5.22}_{-2.74}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 119	0.0446	00 56 18.3	−01 13 00	CM	6.29	4.07	8.25	4.81	Rines et al. (2003)	200/turn	0.3/0.7/None
Abell 119	0.0446	00 56 18.3	−01 13 00	CM	2.55	2.36	3.45	3.06	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 119	0.0446	00 56 18.3	−01 13 00	X-ray	$3.3^{+0.2}_{-0.2}$	–	$4.4^{+0.3}_{-0.3}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 3376	0.045	06 01 45.7	−39 59 34	X-ray	$7.38^{+1.01}_{-1.03}$	$26.61^{+3.72}_{-2.91}$	$9.81^{+1.34}_{-1.37}$	$31.5^{+4.4}_{-3.44}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MKW 3S	0.045	15 21 51.9	+07 42 31	X-ray	$11.37^{+2.18}_{-2.73}$	$12.02^{+2.47}_{-3.19}$	$14.96^{+2.87}_{-3.59}$	$13.78^{+2.83}_{-3.66}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MKW 3S	0.045	15 21 51.9	+07 42 31	X-ray	$6.4^{+0.7}_{-0.7}$	–	$8.4^{+0.9}_{-0.9}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 168	0.0451	01 15 12.0	+00 19 48	LOSVD	$5.6^{+2.0}_{-2.0}$	2.58	$7.4^{+2.6}_{-2.6}$	3.08	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 168	0.0451	01 15 12.0	+00 19 48	X-ray	$7.37^{+0.26}_{-0.27}$	$6.74^{+2.03}_{-1.78}$	$9.8^{+0.35}_{-0.36}$	$7.98^{+2.4}_{-2.11}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 168	0.0451	01 15 12.0	+00 19 48	CM	5.19	4.3	6.84	5.17	Rines et al. (2003)	200/turn	0.3/0.7/None
Abell 168	0.0451	01 15 12.0	+00 19 48	CM	7.69	2.24	10.03	2.61	Rines & Diaferio (2006)	200	0.3/0.7/None
MS 0116.3−0115	0.0452	01 18 53.6	−01 00 07	X-ray	$4.8^{+1.4}_{-1.4}$	$1.055^{+0.514}_{-0.514}$	$6.3^{+1.8}_{-1.8}$	$1.283^{+0.671}_{-0.671}$	Gastaldello et al. (2007b)	1250	0.3/0.7/0.7
Abell 957	0.0455	10 13 40.3	−00 54 52	LOSVD	$9.91^{+1.33}_{-3.46}$	$3.1^{+0.47}_{-0.47}$	$12.85^{+1.73}_{-4.48}$	$3.56^{+0.54}_{-0.54}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_\odot$)	c_{vir}	M_{vir} (10^{14} M$_\odot$)	Ref.	δ	Ω_m/Ω_Λ/h
Abell 957	0.0455	10 13 40.3	−00 54 52	CM	8.13	2.79	10.6	3.25	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1736	0.046	13 26 54.0	−27 11 00	X-ray	$16.27^{+4.16}_{-4.13}$	$8.11^{+1.15}_{-1.18}$	$21.26^{+5.44}_{-5.4}$	$9.12^{+1.29}_{-1.33}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1644	0.047	12 57 09.7	−17 24 01	X-ray	$15.35^{+3.89}_{-4.17}$	$14.6^{+1.47}_{-1.17}$	$20.07^{+5.09}_{-5.45}$	$16.47^{+1.66}_{-1.32}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 4059	0.0478	23 57 02.3	−34 45 38	LOSVD	$2.6^{+0.5}_{-0.7}$	$3.37^{+0.48}_{-0.47}$	$3.52^{+0.67}_{-0.95}$	$4.41^{+0.62}_{-0.61}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 4059	0.0478	23 57 02.3	−34 45 38	X-ray	$9.36^{+2.02}_{-2.01}$	$10.72^{+0.92}_{-1.28}$	$12.36^{+2.67}_{-2.65}$	$12.45^{+1.07}_{-1.49}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 4059	0.0478	23 57 02.3	−34 45 38	X-ray	$4.8^{+0.2}_{-0.2}$	–	$6.3^{+0.3}_{-0.3}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 3558	0.048	13 27 57.5	−31 30 09	X-ray	$8.37^{+0.78}_{-0.83}$	$21.27^{+3.27}_{-2.16}$	$11.08^{+1.03}_{-1.1}$	$24.91^{+3.83}_{-2.53}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 3558	0.048	13 27 57.5	−31 30 09	LOSVD	$1.9^{+4.0}_{-1.2}$	$9.0^{+0.3}_{-2.3}$	$2.7^{+5.3}_{-1.7}$	$12.5^{+3.5}_{-4.5}$	Łokas et al. (2006)	Virial	0.3/0.7/0.7
Abell 3558	0.048	13 27 57.5	−31 30 09	X-ray	$4.0^{+0.2}_{-0.2}$	–	$5.3^{+0.3}_{-0.3}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 376	0.0484	02 45 48.5	+36 51 36	LOSVD	$6.29^{+1.44}_{-2.38}$	$4.67^{+1.34}_{-0.76}$	$8.25^{+1.89}_{-3.12}$	$5.53^{+1.58}_{-0.91}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
SHK 352	0.0484	11 21 40.3	+02 53 33	CM	6.83	4.09	8.94	4.82	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2717	0.049	00 03 12.1	−35 55 38	X-ray	$6.12^{+0.84}_{-0.81}$	$12.94^{+2.11}_{-1.26}$	$8.17^{+1.12}_{-1.08}$	$15.56^{+2.54}_{-1.52}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2717	0.049	00 03 12.1	−35 55 38	X-ray	$4.6^{+0.3}_{-0.3}$	$1.51^{+0.09}_{-0.09}$	$6.0^{+0.4}_{-0.4}$	$1.842^{+0.122}_{-0.122}$	Gastaldello et al. (2007b)	500	0.3/0.7/0.7
Abell 2717	0.049	00 03 12.1	−35 55 38	X-ray	$4.21^{+0.25}_{-0.25}$	$1.57^{+0.19}_{-0.19}$	$5.58^{+0.32}_{-0.32}$	$1.92^{+0.25}_{-0.25}$	Pointecouteau et al. (2005)	200	0.3/0.7/0.7
Abell 2717	0.049	00 03 12.1	−35 55 38	X-ray	$4.2^{+0.3}_{-0.3}$	1.57	$5.6^{+0.4}_{-0.4}$	1.92	Pratt & Arnaud (2005)	200	0.3/0.7/0.7
Abell 3562	0.0499	13 33 36.3	−31 39 40	X-ray	$8.26^{+0.25}_{-0.27}$	$14.05^{+1.56}_{-1.46}$	$10.93^{+0.33}_{-0.36}$	$16.46^{+1.83}_{-1.71}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 3562	0.0499	13 33 36.3	−31 39 40	X-ray	$5.4^{+0.8}_{-0.8}$	–	$7.1^{+1.0}_{-1.0}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 3395	0.05	06 27 14.4	−54 28 12	X-ray	$3.74^{+0.35}_{-0.37}$	$33.67^{+4.27}_{-4.12}$	$5.08^{+0.48}_{-0.5}$	$42.7^{+5.42}_{-5.22}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 671	0.0503	08 28 29.3	+30 25 01	LOSVD	$17.9^{+5.5}_{-5.5}$	5.32	$23.0^{+7.0}_{-7.0}$	5.93	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 671	0.0503	08 28 29.3	+30 25 01	LOSVD	$11.85^{+1.13}_{-4.63}$	$4.85^{+0.88}_{-0.69}$	$15.3^{+1.46}_{-5.98}$	$5.51^{+1.0}_{-0.78}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 671	0.0503	08 28 29.3	+30 25 01	CM	12.1	4.01	15.61	4.54	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1291A	0.0508	11 32 19.6	+55 58 44.0	CM	4.96	1.09	6.55	1.32	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 3391	0.051	06 26 22.8	−53 41 44	X-ray	$9.26^{+1.14}_{-1.36}$	$18.91^{+1.25}_{-1.28}$	$12.22^{+1.5}_{-1.79}$	$21.97^{+1.45}_{-1.49}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 757	0.0514	09 12 47.3	+47 42 38	CM	2.96	0.54	3.98	0.69	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1377	0.0515	11 46 57.9	+55 44 20	LOSVD	$0.9^{+0.4}_{-0.4}$	0.81	$1.3^{+0.5}_{-0.5}$	1.3	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1377	0.0515	11 46 57.9	+55 44 20	CM	2.33	1.16	3.17	1.54	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 117	0.0535	00 56 00.9	−10 01 46	LOSVD	$7.7^{+3.1}_{-3.1}$	2.78	$10.0^{+4.0}_{-4.0}$	3.23	Abdullah et al. (2011)	Virial	0.3/0.7/None
Hydra A	0.0538	09 18 05.7	−12 05 44	WL	$3.32^{+2.17}_{-1.29}$	$3.65^{+2.17}_{-1.43}$	$4.52^{+2.95}_{-1.75}$	$4.66^{+2.77}_{-1.82}$	Okabe et al. (2015)	Virial	0.27/0.73/0.70
Hydra A	0.0538	09 18 05.7	−12 05 44	X-ray	$12.3^{+0.18}_{-0.18}$	$1.02^{+0.41}_{-0.41}$	$15.9^{+0.23}_{-0.23}$	$1.15^{+0.47}_{-0.47}$	David et al. (2001)	200	0.3/0.7/0.7
Abell 754	0.054	09 09 08.4	−09 39 58	WL	$3.74^{+4.12}_{-4.12}$	$3.3^{+4.77}_{-4.77}$	$4.97^{+5.26}_{-5.26}$	$4.09^{+5.39}_{-5.39}$	Okabe & Umetsu (2008)	Virial	0.3/0.7/0.7
Abell 754	0.054	09 09 08.4	−09 39 58	X-ray	$1.02^{+0.27}_{-0.22}$	$40.3^{+3.71}_{-3.16}$	$1.49^{+0.39}_{-0.32}$	$63.37^{+5.83}_{-4.97}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 978	0.0544	10 20 28.8	−06 31 11	LOSVD	$4.25^{+0.86}_{-1.81}$	$4.23^{+1.09}_{-0.68}$	$5.63^{+1.13}_{-2.4}$	$5.19^{+1.34}_{-0.83}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
RXC J1022.0+3830	0.0546	10 22 04.7	+38 30 43	CM	5.45	1.41	7.16	1.69	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 3667	0.055	20 12 30.5	−56 49 55	X-ray	$9.36^{+1.25}_{-1.36}$	$26.84^{+2.48}_{-2.46}$	$12.33^{+1.65}_{-1.79}$	$31.13^{+2.88}_{-2.85}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 85	0.0557	00 41 50.1	−09 18 07	LOSVD	$3.12^{+0.56}_{-0.7}$	$9.59^{+1.38}_{-1.04}$	$4.18^{+0.75}_{-0.94}$	$12.22^{+1.76}_{-1.33}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 85	0.0557	00 41 50.1	−09 18 07	X-ray	$3.55^{+0.26}_{-0.22}$	$25.68^{+4.89}_{-3.18}$	$4.82^{+0.35}_{-0.3}$	$32.73^{+6.23}_{-4.05}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 85	0.0557	00 41 50.1	−09 18 07	CM	4.5	3.36	5.93	4.08	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 85	0.0557	00 41 50.1	−09 18 07	X-ray	$7.5^{+0.6}_{-0.6}$	–	$9.8^{+0.8}_{-0.8}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Sérsic 159 03	0.0564	23 13 58.6	−42 44 02	X-ray	$6.16^{+3.42}_{-2.79}$	$2.3^{+7.9}_{-1.4}$	$8.05^{+4.34}_{-3.56}$	$2.7^{+10.0}_{-1.7}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
Abell 2319	0.0564	19 21 08.8	+43 57 30	X-ray	$1.28^{+0.27}_{-0.22}$	$46.0^{+4.57}_{-5.82}$	$1.83^{+0.39}_{-0.31}$	$68.86^{+6.84}_{-8.71}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2319	0.0564	19 21 08.8	+43 57 30	X-ray	$5.8^{+0.2}_{-0.2}$	–	$7.6^{+0.3}_{-0.3}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 133	0.0569	01 02 42.1	−21 52 25	LOSVD	$8.56^{+1.13}_{-4.31}$	$4.88^{+1.26}_{-0.95}$	$11.09^{+1.47}_{-5.59}$	$5.64^{+1.46}_{-1.1}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 133	0.0569	01 02 42.1	−21 52 25	X-ray	$8.11^{+0.25}_{-0.26}$	$16.34^{+3.55}_{-2.17}$	$10.71^{+0.33}_{-0.34}$	$19.15^{+4.16}_{-2.54}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 133	0.0569	01 02 42.1	−21 52 25	X-ray	$4.77^{+0.42}_{-0.42}$	$4.41^{+0.59}_{-0.59}$	$6.28^{+0.53}_{-0.53}$	$5.33^{+0.77}_{-0.77}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 2256	0.058	17 03 43.5	+78 43 03	X-ray	$1.16^{+0.37}_{-0.27}$	$47.78^{+5.37}_{-5.29}$	$1.67^{+0.53}_{-0.39}$	$72.93^{+8.2}_{-8.07}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2415	0.0581	22 05 40.5	−05 35 36	LOSVD	$5.5^{+1.5}_{-1.94}$	$3.04^{+0.75}_{-0.48}$	$7.22^{+1.97}_{-2.54}$	$3.63^{+0.89}_{-0.58}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2399	0.0582	21 57 25.8	−07 47 41	CM	7.12	1.43	9.28	1.68	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2169	0.0585	16 14 09.6	+49 09 11	CM	3.79	1.14	5.04	1.42	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1991	0.0586	14 54 31.4	+18 38 31	X-ray	$5.78^{+0.35}_{-0.35}$	$1.63^{+0.18}_{-0.18}$	$7.56^{+0.45}_{-0.45}$	$1.94^{+0.22}_{-0.22}$	Pointecouteau et al. (2005)	200	0.3/0.7/0.7
Abell 1991	0.0586	14 54 31.4	+18 38 31	X-ray	$5.7^{+0.4}_{-0.3}$	1.63	$7.5^{+0.5}_{-0.4}$	1.94	Pratt & Arnaud (2005)	200	0.3/0.7/0.7
Abell 1991	0.0586	14 54 31.4	+18 38 31	X-ray	$6.4^{+0.46}_{-0.46}$	$1.65^{+0.24}_{-0.24}$	$8.35^{+0.58}_{-0.58}$	$1.94^{+0.3}_{-0.3}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 3266	0.0594	04 31 24.1	−61 26 38	X-ray	$8.36^{+0.83}_{-0.81}$	$33.25^{+4.16}_{-3.27}$	$11.03^{+1.1}_{-1.07}$	$38.86^{+4.86}_{-3.82}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 3266	0.0594	04 31 24.1	−61 26 38	X-ray	$3.9^{+0.2}_{-0.2}$	–	$5.2^{+0.3}_{-0.3}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 3158	0.0597	03 42 53.9	−53 38 07	LOSVD	$8.71^{+1.07}_{-2.82}$	$11.11^{+2.11}_{-1.62}$	$11.28^{+1.39}_{-3.65}$	$12.81^{+2.43}_{-1.87}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 3158	0.0597	03 42 53.9	−53 38 07	X-ray	$2.19^{+0.8}_{-0.81}$	$25.8^{+3.17}_{-2.72}$	$3.04^{+1.11}_{-1.12}$	$35.1^{+4.31}_{-3.7}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 3158	0.0597	03 42 53.9	−53 38 07	LOSVD	$2.5^{+0.57}_{-1.8}$	$11.4^{+1.7}_{-3.0}$	$3.5^{+7.5}_{-2.5}$	$15.4^{+7.6}_{-5.4}$	Łokas et al. (2006)	Virial	0.3/0.7/0.7
Abell 602	0.0606	07 53 24.2	+29 21 58	CM	10.12	6.41	13.06	7.33	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 3809	0.0623	21 46 57.8	−43 54 36	LOSVD	$2.56^{+0.56}_{-1.08}$	$1.71^{+0.45}_{-0.38}$	$3.45^{+0.75}_{-1.45}$	$2.23^{+0.58}_{-0.49}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2734	0.0625	00 11 20.7	−28 51 18	LOSVD	$2.66^{+0.1}_{-1.21}$	$3.96^{+0.3}_{-1.42}$	$3.58^{+0.14}_{-1.63}$	$5.14^{+0.38}_{-1.84}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
RXC J1351.7+4622	0.063	13 51 45.6	+46 22 00	CM	2.8	0.73	3.76	0.94	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1795	0.063	13 48 53.0	+26 35 44	LOSVD	$7.97^{+0.96}_{-2.76}$	$6.87^{+1.07}_{-0.94}$	$10.33^{+1.25}_{-3.58}$	$7.96^{+1.24}_{-1.09}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_{\odot}$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_{\odot}$)	Ref.	δ	$\Omega_{\rm m}/\Omega_{\Lambda}$/h
Abell 1795	0.063	13 48 53.0	+26 35 44	X-ray	$4.61^{+0.55}_{-0.88}$	$19.34^{+2.18}_{-2.16}$	$6.19^{+0.74}_{-1.18}$	$23.87^{+2.69}_{-2.67}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1795	0.063	13 48 53.0	+26 35 44	X-ray	$4.45^{+0.86}_{-0.77}$	$7.48^{+2.32}_{-1.58}$	$5.86^{+1.09}_{-0.98}$	$9.07^{+3.03}_{-2.03}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
Abell 1795	0.063	13 48 53.0	+26 35 44	X-ray	$4.28^{+2.23}_{-2.41}$	$8.9^{+54.5}_{-5.6}$	$5.64^{+2.84}_{-3.09}$	$10.8^{+74.4}_{-7.0}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
Abell 1795	0.063	13 48 53.0	+26 35 44	X-ray	$4.82^{+0.26}_{-0.26}$	$8.38^{+0.79}_{-0.79}$	$6.32^{+0.33}_{-0.33}$	$10.1^{+1.01}_{-1.01}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 1795	0.063	13 48 53.0	+26 35 44	X-ray	$7.6^{+0.3}_{-0.3}$	–	$9.9^{+0.4}_{-0.4}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
RXC J0216.7−4749	0.0635	02 16 42.3	−47 49 24	X-ray	$3.45^{+0.39}_{-0.39}$	$0.196^{+0.018}_{-0.016}$	$4.59^{+0.52}_{-0.52}$	$0.246^{+0.023}_{-0.021}$	Démoclès et al. (2010)	500	0.3/0.7/0.7
Abell 1436	0.0648	12 00 22.0	+56 13 49	LOSVD	$4.2^{+0.9}_{-0.9}$	3.65	$5.5^{+1.2}_{-1.2}$	4.46	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1436	0.0648	12 00 22.0	+56 13 49	CM	1.99	1.11	2.71	1.5	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2124	0.065	15 45 00.0	+36 03 58	X-ray	$11.36^{+2.84}_{-2.81}$	$13.12^{+1.37}_{-1.27}$	$14.85^{+3.71}_{-3.67}$	$15.0^{+1.57}_{-1.45}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2124	0.065	15 45 00.0	+36 03 58	CM	10.93	8.29	14.05	9.42	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2149	0.0653	16 01 38.1	+53 52 43	CM	1.09	0.19	1.54	0.29	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1066	0.0684	10 39 27.9	+05 10 46	LOSVD	$8.5^{+2.4}_{-2.4}$	4.96	$11.0^{+3.0}_{-3.0}$	5.72	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1066	0.0684	10 39 27.9	+05 10 46	CM	11.13	6.27	14.3	7.12	Rines & Diaferio (2006)	200	0.3/0.7/None
RXC J1115.5+5426	0.0701	11 15 32.8	+54 26 06	CM	6.73	3.91	8.75	4.6	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 644	0.0704	08 17 24.5	−07 30 46	X-ray	$2.19^{+0.25}_{-0.27}$	$32.55^{+3.51}_{-2.99}$	$3.03^{+0.35}_{-0.37}$	$44.13^{+4.76}_{-4.05}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 644	0.0704	08 17 24.5	−07 30 46	X-ray	$4.6^{+0.9}_{-0.9}$	7.0	$6.0^{+1.2}_{-1.2}$	8.0	Buote, Humphrey & Stocke (2005)	Virial	0.3/0.7/0.7
Abell 644	0.0704	08 17 24.5	−07 30 46	X-ray	$4.6^{+0.2}_{-0.2}$	–	$6.0^{+0.3}_{-0.3}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 1767	0.0714	13 36 06.1	+59 12 28	LOSVD	$3.7^{+1.1}_{-1.1}$	6.48	$4.9^{+1.4}_{-1.4}$	8.02	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1767	0.0714	13 36 06.1	+59 12 28	LOSVD	$4.05^{+0.15}_{-1.87}$	$9.52^{+1.13}_{-2.89}$	$5.34^{+0.2}_{-2.46}$	$11.71^{+1.38}_{-3.56}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 1767	0.0714	13 36 06.1	+59 12 28	CM	6.12	7.27	7.97	8.62	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1691	0.072	13 11 23.2	+39 12 05	LOSVD	$2.65^{+0.67}_{-1.15}$	$4.07^{+1.28}_{-0.77}$	$3.56^{+0.9}_{-1.55}$	$5.27^{+1.66}_{-1.0}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 399	0.072	02 57 56.4	+13 00 59	X-ray	$2.15^{+0.37}_{-0.33}$	$37.9^{+3.94}_{-4.11}$	$2.97^{+0.51}_{-0.46}$	$51.5^{+5.35}_{-5.58}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RX J1053.7+5450	0.0727	10 53 43.9	+54 52 20	CM	8.49	4.57	10.96	5.28	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2462	0.073	22 39 16.4	−17 19 46	X-ray	$13.23^{+0.72}_{-0.67}$	$20.73^{+2.47}_{-2.49}$	$17.2^{+0.94}_{-0.87}$	$23.47^{+2.8}_{-2.82}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2065	0.073	15 22 42.6	+27 43 21	X-ray	$2.38^{+0.64}_{-0.56}$	$39.43^{+5.82}_{-4.18}$	$3.27^{+0.88}_{-0.77}$	$52.76^{+7.79}_{-5.59}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1238	0.0733	11 22 58.0	+01 05 32	LOSVD	$3.8^{+2.2}_{-2.2}$	1.35	$5.0^{+2.8}_{-2.8}$	1.66	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 2067	0.0737	15 23 07.9	+30 50 42	CM	18.24	0.51	23.22	0.57	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2064	0.0738	15 20 59.4	+48 38 17	CM	6.67	2.6	8.66	3.06	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1569	0.074	12 36 18.7	+16 35 30	X-ray	$10.37^{+2.01}_{-2.04}$	$14.35^{+1.34}_{-1.11}$	$13.54^{+2.62}_{-2.66}$	$16.48^{+1.54}_{-1.27}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 401	0.0748	02 58 57.5	+13 34 46	X-ray	$3.19^{+0.38}_{-0.33}$	$37.97^{+4.16}_{-2.81}$	$4.32^{+0.51}_{-0.45}$	$48.79^{+5.35}_{-3.61}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 401	0.0748	02 58 57.5	+13 34 46	X-ray	$4.2^{+0.3}_{-0.3}$	–	$5.5^{+0.4}_{-0.4}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 3112	0.075	03 17 58.5	−44 14 20	X-ray	$9.36^{+0.73}_{-0.73}$	$18.84^{+3.14}_{-2.16}$	$12.25^{+0.96}_{-0.96}$	$21.78^{+3.63}_{-2.5}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 3112	0.075	03 17 58.5	−44 14 20	X-ray	$7.06^{+3.62}_{-3.23}$	$2.9^{+13.5}_{-1.9}$	$9.14^{+2.82}_{-3.05}$	$3.4^{+16.4}_{-2.2}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
Abell 1424	0.0754	11 57 28.7	+05 03 46	LOSVD	$5.4^{+1.9}_{-1.9}$	2.32	$7.0^{+2.4}_{-2.4}$	2.76	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1424	0.0754	11 57 28.7	+05 03 46	CM	5.92	4.21	7.71	5.0	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1190	0.0755	11 11 38.5	+40 50 33	LOSVD	$2.93^{+0.44}_{-1.21}$	$3.49^{+0.45}_{-0.82}$	$3.91^{+0.59}_{-1.61}$	$4.46^{+0.58}_{-1.05}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 1190	0.0755	11 11 38.5	+40 50 33	CM	6.08	3.29	7.91	3.9	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1205	0.0756	11 13 20.7	+02 31 56	LOSVD	$12.5^{+6.3}_{-6.3}$	3.33	$16.0^{+8.0}_{-8.0}$	3.76	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1205	0.0756	11 13 20.7	+02 31 56	CM	2.05	3.66	2.78	4.91	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1173	0.076	11 09 18.8	+41 33 45	CM	5.9	1.19	7.68	1.41	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2670	0.0761	23 54 13.7	−10 25 08	LOSVD	$14.1^{+3.2}_{-3.2}$	6.79	$18.0^{+4.0}_{-4.0}$	7.63	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 2670	0.0761	23 54 13.7	−10 25 08	LOSVD	$11.62^{+1.02}_{-3.67}$	$7.25^{+0.95}_{-0.79}$	$14.88^{+1.3}_{-4.7}$	$8.2^{+1.08}_{-0.89}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2670	0.0761	23 54 13.7	−10 25 08	X-ray	$5.33^{+1.11}_{-1.09}$	$16.62^{+1.25}_{-1.62}$	$7.08^{+1.47}_{-1.45}$	$20.15^{+1.52}_{-1.96}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2670	0.0761	23 54 13.7	−10 25 08	CM	3.35	2.03	4.45	2.56	Rines & Diaferio (2006)	200	0.3/0.7/None
RXC J1210.3+0523	0.0764	12 10 19.9	+05 22 25	CM	3.96	0.84	5.22	1.04	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2029	0.0767	15 10 55.0	+05 43 12	X-ray	$6.99^{+0.41}_{-0.43}$	$33.43^{+3.71}_{-4.12}$	$9.21^{+0.54}_{-0.57}$	$39.52^{+4.39}_{-4.87}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2029	0.0767	15 10 55.0	+05 43 12	X-ray	$6.64^{+0.34}_{-0.38}$	$7.66^{+0.77}_{-0.58}$	$8.6^{+0.42}_{-0.48}$	$8.97^{+0.94}_{-0.71}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
Abell 2029	0.0767	15 10 55.0	+05 43 12	X-ray	$4.38^{+1.64}_{-1.76}$	$20.0^{+57.0}_{-16.0}$	$5.74^{+2.08}_{-2.24}$	$24.0^{+74.0}_{-20.0}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
Abell 2029	0.0767	15 10 55.0	+05 43 12	X-ray	$6.0^{+0.3}_{-0.3}$	$10.81^{+1.08}_{-1.08}$	$7.8^{+0.38}_{-0.38}$	$12.76^{+1.33}_{-1.33}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 2029	0.0767	15 10 55.0	+05 43 12	X-ray	$4.4^{+0.9}_{-0.9}$	$12.0^{+2.0}_{-2.0}$	$5.8^{+1.1}_{-1.1}$	$15.0^{+3.0}_{-3.0}$	Lewis, Buote & Stocke (2003)	200	0.3/0.7/0.7
Abell 2029	0.0767	15 10 55.0	+05 43 12	X-ray	$8.4^{+0.6}_{-0.6}$	–	$10.8^{+0.8}_{-0.8}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
ZwCl 1215.1+0400	0.0772	12 17 40.6	+03 39 45	X-ray	$5.62^{+0.42}_{-0.4}$	$33.71^{+4.17}_{-4.29}$	$7.45^{+0.56}_{-0.53}$	$40.65^{+5.03}_{-5.17}$	Babyk et al. (2014)	200	0.27/0.73/0.73
ZwCl 1215.1+0400	0.0772	12 17 40.6	+03 39 45	CM	6.78	2.54	8.79	2.98	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1773	0.0782	13 42 05.5	+02 13 39	LOSVD	$3.89^{+1.18}_{-1.31}$	$5.07^{+1.13}_{-0.88}$	$5.12^{+1.55}_{-1.73}$	$6.25^{+1.39}_{-1.09}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 1773	0.0782	13 42 05.5	+02 13 39	CM	9.83	2.61	12.63	2.98	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2061	0.0783	15 21 17.0	+30 38 24	LOSVD	$9.3^{+2.4}_{-2.4}$	4.78	$12.0^{+3.0}_{-3.0}$	5.48	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 2061	0.0783	15 21 17.0	+30 38 24	CM	6.35	6.41	8.24	7.56	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1809	0.079	13 53 06.4	+05 08 59	LOSVD	$4.6^{+1.5}_{-1.5}$	2.88	$6.0^{+1.9}_{-1.9}$	3.47	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1809	0.079	13 53 06.4	+05 08 59	LOSVD	$6.95^{+0.73}_{-2.42}$	$4.22^{+0.77}_{-0.55}$	$8.99^{+0.95}_{-3.13}$	$4.93^{+0.9}_{-0.64}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 1809	0.079	13 53 06.4	+05 08 59	CM	2.9	2.13	3.87	2.73	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1035B	0.0801	10 32 14.16	+40 14 49.2	CM	4.53	2.86	5.94	3.48	Rines & Diaferio (2006)	200	0.3/0.7/None

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_\odot$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_\odot$)	Ref.	δ	Ω_m/Ω_Λ/h
Abell 2255	0.0801	17 12 31.0	+64 05 33	LOSVD	$16.5^{+10.4}_{-10.4}$	9.06	$21.0^{+13.0}_{-13.0}$	10.1	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 2255	0.0801	17 12 31.0	+64 05 33	CM	5.96	8.24	7.75	9.77	Rines & Diaferio (2006)	200	0.3/0.7/None
RX J1159.8+5531	0.081	11 59 51.4	+55 32 01	X-ray	$8.3^{+2.1}_{-2.1}$	$0.789^{+0.451}_{-0.451}$	$10.6^{+2.7}_{-2.7}$	$0.909^{+0.536}_{-0.536}$	Gastaldello et al. (2007b)	500	0.3/0.7/0.7
RX J1159.8+5531	0.081	11 59 51.4	+55 32 01	X-ray	$2.63^{+0.43}_{-0.43}$	–	$3.51^{+0.55}_{-0.55}$	–	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 1651	0.0825	12 59 21.5	−04 11 41	X-ray	$4.29^{+0.74}_{-0.71}$	$19.48^{+2.45}_{-2.17}$	$5.73^{+0.99}_{-0.95}$	$24.12^{+3.03}_{-2.69}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1651	0.0825	12 59 21.5	−04 11 41	X-ray	$4.9^{+0.2}_{-0.2}$	–	$6.4^{+0.3}_{-0.3}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
RX J1326.2+0013	0.0827	13 26 17.6	+00 13 17	CM	2.98	0.89	3.97	1.13	Rines & Diaferio (2006)	200	0.3/0.7/None
MS 1306	0.0832	13 09 16.99	−01 36 45.0	CM	3.25	0.71	4.31	0.9	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2428	0.0836	22 16 15.5	−09 20 24	CM	3.07	1.56	4.08	1.98	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1663	0.0837	13 02 50.7	−02 30 22	LOSVD	$14.1^{+9.6}_{-9.6}$	3.7	$18.0^{+12.0}_{-12.0}$	4.15	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1663	0.0837	13 02 50.7	−02 30 22	CM	4.06	5.07	5.34	6.24	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1459	0.0839	12 04 15.7	+02 30 18	LOSVD	$26.1^{+5.6}_{-5.6}$	1.53	$33.0^{+7.0}_{-7.0}$	1.67	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 1650	0.0843	12 58 41.1	−01 45 25	LOSVD	$2.12^{+0.25}_{-0.78}$	$5.98^{+1.08}_{-1.23}$	$2.87^{+0.34}_{-1.05}$	$7.99^{+1.44}_{-1.65}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 1650	0.0843	12 58 41.1	−01 45 25	X-ray	$2.03^{+0.35}_{-0.37}$	$39.44^{+3.74}_{-2.78}$	$2.8^{+0.48}_{-0.51}$	$53.84^{+5.11}_{-3.8}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1650	0.0843	12 58 41.1	−01 45 25	CM	2.3	1.56	3.09	2.05	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2597	0.0852	23 25 20.0	−12 07 38	X-ray	$8.28^{+1.27}_{-1.26}$	$10.76^{+1.27}_{-1.22}$	$10.83^{+1.66}_{-1.65}$	$12.53^{+1.48}_{-1.42}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2597	0.0852	23 25 20.0	−12 07 38	X-ray	$5.86^{+0.5}_{-0.5}$	$3.0^{+0.33}_{-0.33}$	$7.59^{+0.63}_{-0.63}$	$3.54^{+0.42}_{-0.42}$	Pointecouteau et al. (2005)	200	0.3/0.7/0.7
Abell 2597	0.0852	23 25 20.0	−12 07 38	X-ray	$6.7^{+0.6}_{-0.6}$	–	$8.7^{+0.8}_{-0.8}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 1750N	0.0856	13 30 49.9	−01 52 22	WL	$3.97^{+2.71}_{-2.71}$	$3.39^{+2.68}_{-2.68}$	$5.21^{+3.42}_{-3.42}$	$4.14^{+2.97}_{-2.97}$	Okabe & Umetsu (2008)	Virial	0.3/0.7/0.7
Abell 1750C	0.0856	13 30 49.9	−01 52 22	WL	$4.22^{+3.87}_{-3.87}$	$2.21^{+2.13}_{-2.13}$	$5.52^{+4.89}_{-4.89}$	$2.69^{+2.33}_{-2.33}$	Okabe & Umetsu (2008)	Virial	0.3/0.7/0.7
Abell 1750	0.0856	13 30 49.9	−01 52 22	CM	2.96	2.7	3.94	3.44	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1552	0.0861	12 29 50.0	+11 44 26	CM	2.42	2.39	3.24	3.12	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2249	0.0863	17 09 48.8	+34 26 26	CM	10.9	8.61	13.94	9.76	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2245	0.0868	17 02 31.9	+33 30 47	CM	11.31	7.9	14.45	8.93	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 478	0.088	04 13 25.6	+10 28 01	WL	$3.4^{+1.25}_{-0.95}$	$13.06^{+4.52}_{-3.49}$	$4.56^{+1.67}_{-1.28}$	$16.48^{+5.7}_{-4.41}$	Okabe et al. (2015)	Virial	0.27/0.73/0.70
Abell 478	0.088	04 13 25.6	+10 28 01	X-ray	$4.51^{+0.51}_{-0.48}$	$23.35^{+2.62}_{-2.17}$	$6.01^{+0.68}_{-0.64}$	$28.72^{+3.22}_{-2.67}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 478	0.088	04 13 25.6	+10 28 01	X-ray	$3.92^{+0.36}_{-0.33}$	$13.1^{+2.3}_{-2.1}$	$5.13^{+0.45}_{-0.41}$	$16.0^{+3.0}_{-2.6}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
Abell 478	0.088	04 13 25.6	+10 28 01	X-ray	$2.88^{+2.02}_{-2.88}$	$34.0^{+\infty}_{-26.0}$	$3.81^{+2.56}_{-3.81}$	$43.0^{+\infty}_{-33.0}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
Abell 478	0.088	04 13 25.6	+10 28 01	X-ray	$4.22^{+0.39}_{-0.39}$	$10.8^{+1.8}_{-1.8}$	$5.52^{+0.49}_{-0.49}$	$13.1^{+2.3}_{-2.3}$	Pointecouteau et al. (2005)	200	0.3/0.7/0.7
Abell 478	0.088	04 13 25.6	+10 28 01	X-ray	$5.33^{+0.39}_{-0.39}$	$10.53^{+1.51}_{-1.51}$	$6.92^{+0.49}_{-0.49}$	$12.51^{+1.88}_{-1.88}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 478	0.088	04 13 25.6	+10 28 01	X-ray	$4.2^{+0.4}_{-0.4}$	11.0	$5.5^{+0.5}_{-0.5}$	13.0	Pointecouteau et al. (2004)	200	0.3/0.7/0.7
Abell 478	0.088	04 13 25.6	+10 28 01	X-ray	$3.67^{+0.31}_{-0.35}$	$18.4^{+4.8}_{-2.4}$	$4.82^{+0.39}_{-0.44}$	$22.6^{+6.2}_{-3.1}$	Allen et al. (2003)	200	0.3/0.7/0.5
Abell 478	0.088	04 13 25.6	+10 28 01	X-ray	$6.7^{+0.4}_{-0.4}$	–	$8.6^{+0.5}_{-0.5}$	–	Xu et al. (2001)	200	0.3/0.7/0.5
Abell 1885	0.0882	14 13 43.5	+43 39 48	CM	4.67	6.13	6.1	7.42	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 1728	0.0899	13 23 30.2	+11 17 46	CM	4.59	3.96	6.0	4.8	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2142	0.0903	15 58 20.6	+27 13 37	LOSVD	$3.3^{+1.0}_{-1.0}$	7.77	$4.4^{+1.3}_{-1.3}$	9.69	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 2142	0.0903	15 58 20.6	+27 13 37	LOSVD	$2.24^{+0.3}_{-0.78}$	$12.32^{+1.78}_{-2.07}$	$3.01^{+0.41}_{-1.05}$	$16.29^{+2.35}_{-2.74}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2142	0.0903	15 58 20.6	+27 13 37	WL	$4.29^{+0.69}_{-0.61}$	$12.62^{+2.59}_{-1.89}$	$5.6^{+0.9}_{-0.8}$	$15.29^{+3.14}_{-2.29}$	Umetsu et al. (2009)	Virial	0.3/0.7/0.7
Abell 2142	0.0903	15 58 20.6	+27 13 37	WL	$3.27^{+1.35}_{-1.35}$	$13.66^{+6.7}_{-6.7}$	$4.32^{+1.7}_{-1.7}$	$17.07^{+7.49}_{-7.49}$	Okabe & Umetsu (2008)	Virial	0.3/0.7/0.7
Abell 2142	0.0903	15 58 20.6	+27 13 37	X-ray	$5.27^{+0.83}_{-0.79}$	$29.87^{+2.47}_{-3.17}$	$6.97^{+1.1}_{-1.04}$	$36.14^{+2.99}_{-3.84}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2142	0.0903	15 58 20.6	+27 13 37	CM	1.97	4.56	2.66	6.13	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2700	0.092	00 03 50.6	+02 03 48	X-ray	$8.06^{+1.52}_{-1.3}$	$1.9^{+0.23}_{-0.23}$	$10.35^{+1.95}_{-1.67}$	$2.19^{+0.27}_{-0.27}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 971	0.0923	10 19 46.7	+40 57 55	CM	10.49	4.57	13.4	5.19	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 954	0.0928	10 13 44.8	−00 06 31	LOSVD	$4.03^{+1.19}_{-1.49}$	$4.32^{+1.32}_{-0.95}$	$5.28^{+1.57}_{-1.95}$	$5.28^{+1.61}_{-1.16}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 954	0.0928	10 13 44.8	−00 06 31	CM	0.58	0.84	0.85	1.44	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 3921	0.093	22 49 57.0	−64 25 46	X-ray	$5.27^{+0.73}_{-0.71}$	$29.61^{+2.15}_{-1.77}$	$6.97^{+0.97}_{-0.94}$	$35.81^{+2.6}_{-2.14}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2175	0.0961	16 20 22.9	+29 54 54	LOSVD	$2.13^{+0.34}_{-1.2}$	$5.03^{+1.25}_{-1.33}$	$2.87^{+0.46}_{-1.62}$	$6.69^{+1.66}_{-1.77}$	Wojtak & Łokas (2010)	102	0.3/0.7/0.7
Abell 2175	0.0961	16 20 22.9	+29 54 54	CM	0.64	1.34	0.93	2.23	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 3911	0.097	22 46 18.6	−52 43 46	X-ray	$5.59^{+1.33}_{-1.39}$	$3.88^{+0.5}_{-0.5}$	$7.24^{+1.72}_{-1.8}$	$4.61^{+0.59}_{-0.59}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 2110	0.0971	15 39 48.7	+30 43 02	CM	4.69	2.14	6.11	2.59	Rines & Diaferio (2006)	200	0.3/0.7/None
Abell 2048	0.0972	15 15 17.8	+04 22 56	LOSVD	$31.0^{+20.9}_{-20.9}$	5.02	$39.0^{+26.0}_{-26.0}$	5.45	Abdullah et al. (2011)	Virial	0.3/0.7/None
Abell 3827	0.098	22 01 56.0	−59 56 58	X-ray	$4.47^{+0.67}_{-0.64}$	$6.61^{+0.73}_{-0.73}$	$5.83^{+0.87}_{-0.83}$	$8.02^{+0.89}_{-0.89}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 3827	0.098	22 01 56.0	−59 56 58	X-ray	$4.45^{+0.67}_{-0.77}$	$78.9^{+5.26}_{-4.27}$	$5.91^{+0.89}_{-1.02}$	$96.98^{+6.47}_{-5.25}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2244	0.0997	17 02 42.9	+34 03 43	X-ray	$2.43^{+0.84}_{-0.81}$	$36.52^{+3.16}_{-3.18}$	$3.3^{+1.14}_{-1.1}$	$48.31^{+4.18}_{-4.21}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2244	0.0997	17 02 42.9	+34 03 43	CM	3.83	4.36	5.02	5.38	Rines & Diaferio (2006)	200	0.3/0.7/None
PKS 0745−191	0.103	07 47 31.3	−19 17 40	X-ray	$6.45^{+0.73}_{-0.61}$	$33.52^{+3.17}_{-3.17}$	$8.45^{+0.96}_{-0.8}$	$39.71^{+3.76}_{-3.76}$	Babyk et al. (2014)	200	0.27/0.73/0.73
PKS 0745−191	0.103	07 47 31.3	−19 17 40	X-ray	$5.86^{+1.56}_{-1.07}$	$11.82^{+4.7}_{-3.55}$	$7.55^{+1.95}_{-1.34}$	$13.89^{+5.85}_{-1.07}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
PKS 0745−191	0.103	07 47 31.3	−19 17 40	X-ray	$5.46^{+3.22}_{-2.88}$	$9.7^{+52.2}_{-8.5}$	$7.05^{+4.04}_{-3.63}$	$11.0^{+67.0}_{-10.0}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
PKS 0745−191	0.103	07 47 31.3	−19 17 40	X-ray	$5.12^{+0.4}_{-0.4}$	$10.0^{+1.2}_{-1.2}$	$6.62^{+0.5}_{-0.5}$	$11.9^{+1.5}_{-1.5}$	Pointecouteau et al. (2005)	200	0.3/0.7/0.7
PKS 0745−191	0.103	07 47 31.3	−19 17 40	X-ray	$3.83^{+0.52}_{-0.27}$	$18.6^{+3.5}_{-4.0}$	$5.0^{+0.66}_{-0.34}$	$22.7^{+4.5}_{-5.1}$	Allen et al. (2003)	200	0.3/0.7/0.5
Abell 1446	0.104	12 01 51.5	+58 01 18	X-ray	$9.16^{+0.67}_{-0.72}$	$12.66^{+1.26}_{-1.15}$	$11.89^{+0.87}_{-0.93}$	$14.59^{+1.45}_{-1.33}$	Babyk et al. (2014)	200	0.27/0.73/0.73

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_{\odot}$)	c_{vir}	M_{vir} (10^{14} M$_{\odot}$)	Ref.	δ	Ω_m/Ω_Λ/h
RXC J0049.4-2931	0.108	00 49 24.0	−29 31 28	X-ray	$12.77^{+3.8}_{-3.18}$	$0.94^{+0.16}_{-0.16}$	$16.17^{+4.81}_{-4.03}$	$1.05^{+0.18}_{-0.18}$	Ettori et al. (2011)	200	0.3/0.7/0.7
ZwCl 0740.4+1740	0.1114	07 43 23.16	+17 33 40.0	WL	$1.8^{+1.5}_{-1.5}$	$7.0^{+4.4}_{-4.4}$	$2.4^{+1.9}_{-1.9}$	$9.5^{+7.1}_{-7.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ZwCl 0740.4+1740	0.1114	07 43 23.16	+17 33 40.0	WL	$2.09^{+1.49}_{-1.0}$	$4.36^{+4.06}_{-1.77}$	$2.85^{+2.03}_{-1.37}$	$5.89^{+5.48}_{-2.39}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 2034	0.113	15 10 11.7	+33 30 53	X-ray	$2.46^{+0.81}_{-0.06}$	$17.64^{+2.17}_{-2.17}$	$3.26^{+1.07}_{-0.08}$	$22.82^{+2.81}_{-2.81}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 2034	0.113	15 10 11.7	+33 30 53	WL	$2.84^{+1.79}_{-1.79}$	$8.09^{+5.55}_{-5.55}$	$3.74^{+2.25}_{-2.25}$	$10.24^{+6.14}_{-6.14}$	Okabe & Umetsu (2008)	Virial	0.3/0.7/0.7
Abell 2034	0.113	15 10 11.7	+33 30 53	X-ray	$2.46^{+0.59}_{-0.62}$	$19.98^{+2.54}_{-1.37}$	$3.33^{+0.8}_{-0.84}$	$26.28^{+3.34}_{-1.8}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2051	0.115	15 16 34.0	−00 56 56	X-ray	$2.75^{+0.49}_{-0.06}$	$4.73^{+0.42}_{-0.42}$	$3.63^{+0.65}_{-0.08}$	$6.03^{+0.54}_{-0.54}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1361	0.117	11 43 45.1	+46 21 21	X-ray	$7.28^{+0.83}_{-0.81}$	$11.07^{+1.34}_{-1.18}$	$9.46^{+1.08}_{-1.05}$	$12.95^{+1.57}_{-1.38}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2050	0.118	15 16 19.2	+00 05 52	X-ray	$7.06^{+1.64}_{-1.54}$	$2.84^{+0.41}_{-0.41}$	$9.03^{+2.1}_{-1.97}$	$3.3^{+0.48}_{-0.48}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 3814	0.118	21 49 07.4	−30 41 55	X-ray	$4.79^{+0.43}_{-0.49}$	$2.21^{+0.21}_{-0.21}$	$6.19^{+0.56}_{-0.63}$	$2.65^{+0.25}_{-0.25}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J1141.4−1216	0.119	11 41 24.3	−12 16 20	X-ray	$3.15^{+0.19}_{-0.24}$	$4.88^{+0.37}_{-0.37}$	$4.13^{+0.25}_{-0.31}$	$6.12^{+0.46}_{-0.46}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1664	0.128	13 03 41.8	−24 13 06	X-ray	$7.24^{+0.83}_{-0.81}$	$22.84^{+2.81}_{-2.19}$	$9.38^{+1.08}_{-1.05}$	$26.68^{+3.28}_{-2.56}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1084	0.132	10 44 33.0	−07 04 22	X-ray	$4.56^{+0.34}_{-0.25}$	$2.86^{+0.18}_{-0.18}$	$5.88^{+0.44}_{-0.32}$	$3.44^{+0.22}_{-0.22}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RX J1416.4+2315	0.137	14 16 26.9	+23 15 31	X-ray	$11.2^{+4.5}_{-4.5}$	$3.1^{+1.0}_{-1.0}$	$14.1^{+5.6}_{-5.6}$	$3.5^{+1.3}_{-1.3}$	Khosroshahi et al. (2006)	200	0.3/0.7/0.7
Abell 1068	0.1375	10 40 43.9	+39 56 53	X-ray	$3.02^{+0.2}_{-0.22}$	$6.4^{+0.48}_{-0.48}$	$3.94^{+0.26}_{-0.29}$	$8.02^{+0.6}_{-0.6}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1068	0.1375	10 40 43.9	+39 56 53	X-ray	$3.05^{+0.21}_{-0.22}$	$7.71^{+0.71}_{-0.78}$	$4.05^{+0.28}_{-0.29}$	$9.8^{+0.9}_{-0.99}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1068	0.1375	10 40 43.9	+39 56 53	X-ray	$3.69^{+0.26}_{-0.26}$	$5.68^{+0.49}_{-0.49}$	$4.77^{+0.33}_{-0.33}$	$6.9^{+0.65}_{-0.65}$	Pointecouteau et al. (2005)	200	0.3/0.7/0.7
RXC J2218.6−3853	0.138	22 18 40.2	−38 53 51	X-ray	$3.16^{+0.85}_{-0.55}$	$8.76^{+1.62}_{-1.62}$	$4.12^{+1.11}_{-0.72}$	$10.92^{+2.02}_{-2.02}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J0605.8−3518	0.141	06 05 52.8	−35 18 02	X-ray	$4.1^{+0.34}_{-0.34}$	$4.51^{+0.36}_{-0.36}$	$5.29^{+0.44}_{-0.44}$	$5.47^{+0.44}_{-0.44}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J0605.8−3518	0.141	06 05 52.8	−35 18 02	X-ray	$4.14^{+0.33}_{-0.23}$	$6.37^{+0.75}_{-0.72}$	$5.43^{+0.43}_{-0.3}$	$7.81^{+0.92}_{-0.88}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 22	0.142	00 20 42.8	−25 42 37	X-ray	$4.17^{+1.41}_{-1.07}$	$10.03^{+2.67}_{-2.67}$	$5.37^{+1.82}_{-1.38}$	$12.14^{+3.23}_{-3.23}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1413	0.143	11 55 18.9	+23 24 31	X-ray	$5.83^{+0.57}_{-0.35}$	$6.12^{+0.32}_{-0.32}$	$7.44^{+0.73}_{-0.45}$	$7.18^{+0.38}_{-0.38}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1413	0.143	11 55 18.9	+23 24 31	X-ray	$5.85^{+0.67}_{-0.44}$	$8.53^{+1.18}_{-0.92}$	$7.59^{+0.87}_{-0.57}$	$10.12^{+1.4}_{-1.09}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1413	0.143	11 55 18.9	+23 24 31	X-ray	$4.44^{+0.78}_{-0.75}$	$9.31^{+2.69}_{-1.77}$	$5.69^{+0.97}_{-0.94}$	$11.11^{+3.45}_{-2.23}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
Abell 1413	0.143	11 55 18.9	+23 24 31	X-ray	$5.82^{+0.5}_{-0.5}$	$6.5^{+0.65}_{-0.65}$	$7.41^{+0.62}_{-0.62}$	$7.59^{+0.82}_{-0.82}$	Pointecouteau et al. (2005)	200	0.3/0.7/0.7
Abell 1413	0.143	11 55 18.9	+23 24 31	X-ray	$4.42^{+0.24}_{-0.24}$	$10.67^{+1.17}_{-1.17}$	$5.66^{+0.3}_{-0.3}$	$12.73^{+1.47}_{-1.47}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 2328	0.147	20 48 10.6	−17 50 38	X-ray	$2.23^{+1.63}_{-0.21}$	$5.96^{+1.12}_{-1.12}$	$2.94^{+2.15}_{-0.28}$	$7.73^{+1.45}_{-1.45}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J0547.6−3152	0.148	05 47 38.2	−31 52 31	X-ray	$4.1^{+0.59}_{-1.17}$	$7.89^{+1.51}_{-1.51}$	$5.28^{+0.76}_{-1.51}$	$9.55^{+1.83}_{-1.83}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J0547.6−3152	0.148	05 47 38.2	−31 52 31	X-ray	$4.14^{+0.57}_{-0.63}$	$11.06^{+1.17}_{-1.1}$	$5.42^{+0.75}_{-0.82}$	$13.55^{+1.43}_{-1.35}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2204	0.152	16 32 46.5	+05 34 14	X-ray	$2.81^{+0.02}_{-0.28}$	$15.93^{+1.19}_{-1.19}$	$3.66^{+0.03}_{-0.36}$	$20.06^{+1.5}_{-1.5}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 2204	0.152	16 32 46.5	+05 34 14	WL	$7.1^{+6.2}_{-6.2}$	$7.2^{+2.7}_{-2.7}$	$9.0^{+7.9}_{-7.9}$	$8.3^{+3.1}_{-3.1}$	Corless et al. (2009)	200	0.3/0.7/0.7
Abell 2204	0.152	16 32 46.5	+05 34 14	X-ray	$2.83^{+0.32}_{-0.44}$	$23.35^{+3.16}_{-2.17}$	$3.76^{+0.43}_{-0.58}$	$29.83^{+4.04}_{-2.77}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2204	0.152	16 32 46.5	+05 34 14	WL	6.3	–	8.0	–	Clowe (2003)	200	0.3/0.7/0.7
Abell 2204	0.152	16 32 46.5	+05 34 14	WL	6.3	$12.0^{+3.0}_{-2.0}$	8.0	$14.0^{+3.0}_{-2.0}$	Clowe & Schneider (2002)	200	0.3/0.7/None
Abell 2204	0.152	16 32 46.5	+05 34 14	WL	4.3	–	5.5	–	Clowe & Schneider (2001a)	200	0.3/0.7/0.7
Abell 2204	0.152	16 32 46.5	+05 34 14	X-ray	$9.75^{+2.92}_{-2.16}$	$7.48^{+2.63}_{-1.8}$	$12.2^{+3.6}_{-2.67}$	$8.44^{+3.14}_{-2.12}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
Abell 2204	0.152	16 32 46.5	+05 34 14	X-ray	$4.59^{+0.37}_{-0.37}$	$11.8^{+1.3}_{-1.3}$	$5.86^{+0.46}_{-0.46}$	$14.0^{+1.7}_{-1.7}$	Pointecouteau et al. (2005)	200	0.3/0.7/0.7
Abell 3888	0.153	22 34 31.0	−37 44 06	X-ray	$4.28^{+2.31}_{-1.16}$	$13.42^{+4.15}_{-4.15}$	$5.49^{+2.96}_{-1.49}$	$16.16^{+5.0}_{-5.0}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 2009	0.153	15 00 20.40	+21 21 43.2	WL	$5.5^{+1.9}_{-1.9}$	$4.3^{+1.1}_{-1.1}$	$7.0^{+2.4}_{-2.4}$	$5.1^{+1.4}_{-1.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 2009	0.153	15 00 20.40	+21 21 43.2	WL	$5.09^{+1.85}_{-1.32}$	$3.24^{+1.01}_{-0.78}$	$6.59^{+2.4}_{-1.71}$	$3.86^{+1.2}_{-0.93}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 907	0.1527	09 58 22.2	−11 03 35	X-ray	$2.39^{+0.42}_{-0.39}$	$11.94^{+2.02}_{-2.02}$	$3.13^{+0.55}_{-0.51}$	$15.32^{+2.59}_{-2.59}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 907	0.1527	09 58 22.2	−11 03 35	X-ray	$6.25^{+1.01}_{-0.89}$	$6.54^{+0.73}_{-0.72}$	$8.07^{+1.3}_{-1.15}$	$7.7^{+0.86}_{-0.85}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 907	0.1527	09 58 22.2	−11 03 35	X-ray	$5.21^{+0.6}_{-0.6}$	$6.28^{+0.63}_{-0.63}$	$6.61^{+0.75}_{-0.75}$	$7.37^{+0.82}_{-0.82}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 1240	0.159	11 23 32.1	+43 06 32	X-ray	$6.38^{+0.28}_{-0.15}$	$7.34^{+0.94}_{-0.81}$	$8.22^{+0.36}_{-0.19}$	$8.62^{+1.1}_{-0.95}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RXC J2014.8−2430	0.161	20 14 49.7	−24 30 30	X-ray	$3.86^{+0.15}_{-0.3}$	$7.56^{+0.53}_{-0.53}$	$4.96^{+0.19}_{-0.39}$	$9.18^{+0.64}_{-0.64}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J2014.8−2430	0.161	20 14 49.7	−24 30 30	X-ray	$3.88^{+0.54}_{-0.67}$	$10.53^{+1.48}_{-1.47}$	$5.07^{+0.71}_{-0.88}$	$12.95^{+1.82}_{-1.81}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RX J1720.1+2638	0.164	17 20 08.88	+26 38 06.0	WL	$8.5^{+4.1}_{-4.1}$	$4.6^{+1.4}_{-1.4}$	$10.7^{+5.0}_{-5.0}$	$5.2^{+1.8}_{-1.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RX J1720.1+2638	0.164	17 20 08.88	+26 38 06.0	WL	$6.81^{+4.37}_{-2.4}$	$3.5^{+1.42}_{-1.05}$	$8.73^{+5.6}_{-3.08}$	$4.07^{+1.65}_{-1.22}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 3404	0.167	06 45 29.3	−54 13 08	X-ray	$4.58^{+1.06}_{-0.96}$	$7.08^{+1.12}_{-1.12}$	$5.84^{+1.35}_{-1.22}$	$8.45^{+1.34}_{-1.34}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1201	0.169	11 12 54.9	+13 26 41	X-ray	$6.27^{+0.83}_{-0.81}$	$5.43^{+0.59}_{-0.66}$	$8.05^{+1.07}_{-1.04}$	$6.37^{+0.69}_{-0.77}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 586	0.171	07 32 22.32	+31 38 02.4	WL	$1.0^{+0.4}_{-0.4}$	$22.6^{+13.3}_{-13.3}$	$1.4^{+0.5}_{-0.5}$	$32.9^{+21.8}_{-21.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 586	0.171	07 32 22.32	+31 38 02.4	WL	$6.55^{+2.75}_{-1.97}$	$6.34^{+2.49}_{-1.79}$	$8.38^{+3.52}_{-2.52}$	$7.37^{+2.89}_{-2.08}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 1914	0.171	14 26 01.6	+37 49 38	WL	$3.21^{+2.26}_{-2.26}$	$7.15^{+4.31}_{-4.31}$	$4.13^{+2.79}_{-2.79}$	$8.77^{+4.56}_{-4.56}$	Okabe & Umetsu (2008)	Virial	0.3/0.7/0.7
Abell 1914	0.171	14 26 01.6	+37 49 38	X-ray	$1.04^{+0.36}_{-0.33}$	$76.85^{+5.81}_{-5.28}$	$1.44^{+0.5}_{-0.46}$	$113.86^{+8.61}_{-7.82}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2218	0.175	16 35 52.4	+66 12 52	X-ray	$6.26^{+2.46}_{-1.48}$	$4.76^{+0.74}_{-0.74}$	$7.9^{+3.1}_{-1.87}$	$5.52^{+0.86}_{-0.86}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 2218	0.175	16 35 52.4	+66 12 52	WL	$6.86^{+1.3}_{-1.3}$	$13.87^{+3.07}_{-3.07}$	$8.63^{+1.6}_{-1.6}$	$15.99^{+3.76}_{-3.76}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 2218	0.175	16 35 52.4	+66 12 52	X-ray	$6.33^{+2.34}_{-1.55}$	$6.46^{+0.82}_{-0.83}$	$8.12^{+3.0}_{-1.99}$	$7.57^{+0.96}_{-0.97}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2345	0.1765	21 27 11.0	−12 09 33	WL	$0.2^{+0.1}_{-0.1}$	$24.6^{+9.3}_{-9.3}$	$0.3^{+0.1}_{-0.1}$	$51.6^{+25.3}_{-25.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 750	0.18	09 09 06.7	+11 01 48	WL	$2.5^{+1.4}_{-1.4}$	$11.3^{+4.3}_{-4.3}$	$3.2^{+1.7}_{-1.7}$	$14.3^{+6.4}_{-6.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	$10.7^{+4.5}_{-2.7}$	$17.6^{+2.0}_{-2.0}$	$13.4^{+5.4}_{-3.3}$	$19.7^{+2.0}_{-2.0}$	Umetsu & Broadhurst (2008)	200/virial	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL+SL	$10.1^{+0.8}_{-0.7}$	$18.6^{+1.6}_{-1.6}$	$12.7^{+1.0}_{-0.9}$	$21.0^{+1.7}_{-1.7}$	Umetsu & Broadhurst (2008)	200/virial	0.3/0.7/0.7

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_{\odot}$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_{\odot}$)	Ref.	δ	$\Omega_{\rm m}/\Omega_{\Lambda}$/h
Abell 1689	0.18	13 11 29.5	−01 20 17	SL	$9.2^{+1.2}_{-1.2}$	$18.0^{+4.0}_{-3.0}$	$11.5^{+1.5}_{-1.4}$	$20.0^{+5.0}_{-0.3}$	Coe et al. (2010)	200/virial	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	$10.7^{+2.85}_{-2.85}$	$18.3^{+3.7}_{-3.7}$	$13.32^{+3.48}_{-3.48}$	$20.5^{+4.4}_{-4.4}$	Umetsu et al. (2015)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	SL	$8.69^{+1.26}_{-1.26}$	$25.6^{+4.4}_{-4.4}$	$10.86^{+1.54}_{-1.54}$	$29.0^{+5.3}_{-5.3}$	Umetsu et al. (2015)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL+SL	$10.3^{+2.52}_{-2.52}$	$21.3^{+3.6}_{-3.6}$	$12.83^{+3.08}_{-3.08}$	$23.9^{+4.4}_{-4.4}$	Umetsu et al. (2015)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	X-ray	$8.31^{+0.64}_{-0.63}$	$7.36^{+0.44}_{-0.44}$	$10.4^{+0.8}_{-0.79}$	$8.36^{+0.5}_{-0.5}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	$15.4^{+9.0}_{-9.0}$	$13.1^{+2.8}_{-2.8}$	$19.1^{+11.2}_{-11.2}$	$14.4^{+3.1}_{-3.1}$	Corless et al. (2009)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	$12.56^{+3.86}_{2.66}$	$13.99^{+2.31}_{-2.06}$	$15.6^{+4.8}_{3.3}$	$15.57^{+2.57}_{-2.29}$	Umetsu et al. (2009)	Virial	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	$10.27^{+2.48}_{-1.93}$	$16.31^{+2.76}_{-2.24}$	$12.8^{+3.09}_{-2.41}$	$18.31^{+3.1}_{-2.51}$	Umetsu et al. (2011a)	Virial	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	$4.28^{+0.82}_{-0.82}$	$28.16^{+4.8}_{-4.8}$	$5.45^{+1.01}_{-1.01}$	$33.73^{+6.35}_{-6.35}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	X-ray	$8.35^{+0.91}_{-0.85}$	$16.09^{+2.81}_{-1.73}$	$10.62^{+1.16}_{-1.08}$	$18.44^{+3.22}_{-1.98}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1689	0.18	13 11 29.5	−01 20 17	SL	$6.0^{+0.5}_{-0.5}$	30.0	$7.6^{+0.6}_{-0.6}$	35.0	Halkola, Seitz & Pannella (2006)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	SL	$5.7^{+0.34}_{-0.5}$	$130.0^{+88.0}_{-57.0}$	$7.18^{+0.42}_{-0.62}$	$151.0^{+104.0}_{-67.0}$	Zekser et al. (2006)	200	0.3/0.7/None
Abell 1689	0.18	13 11 29.5	−01 20 17	SL	$6.5^{+1.9}_{-1.6}$	$34.0^{+1.0}_{-2.0}$	$8.2^{+2.1}_{-1.8}$	$40.0^{+1.0}_{-1.0}$	Broadhurst et al. (2005b)	Virial	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	30.4	–	37.4	–	Halkola et al. (2006)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	$22.1^{+2.9}_{-4.7}$	–	$27.2^{+3.5}_{-5.7}$	–	Medezinski et al. (2007)	Virial	0.3/0.7/None
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	$3.5^{+0.5}_{-0.3}$	$14.1^{+6.3}_{-4.7}$	$4.5^{+0.6}_{-0.4}$	$17.1^{+7.8}_{-5.8}$	Bardeau et al. (2005)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	$11.0^{+1.14}_{-0.9}$	$17.3^{+1.7}_{-1.7}$	$13.7^{+1.4}_{-1.1}$	$19.3^{+2.0}_{-2.0}$	Broadhurst et al. (2005a)	Virial	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	7.9	–	9.9	–	Clowe (2003)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	4.8	8.5	6.1	10.0	King et al. (2002)	200	1.0/0.0/None
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	6.0	–	8.0	–	Clowe & Schneider (2001b)	200	0.3/0.7/None
Abell 1689	0.18	13 11 29.5	−01 20 17	WL	6.0	–	7.6	–	Clowe & Schneider (2001a)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL+SL	$7.6^{+0.3}_{-0.5}$	23.0	$9.5^{+0.4}_{-0.6}$	26.0	Halkola et al. (2006)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	WL+SL	$7.6^{+1.6}_{-1.6}$	$13.2^{+2.0}_{-2.0}$	$9.5^{+2.0}_{-2.0}$	$15.1^{+2.0}_{-2.0}$	Limousin et al. (2007)	200	0.3/0.7/0.7
Abell 1689	0.18	13 11 29.5	−01 20 17	X-ray	$7.7^{+1.7}_{-2.6}$	–	$9.6^{+2.1}_{-3.2}$	–	Andersson & Madejski (2004)	200	0.3/0.7/0.7
Abell 383	0.188	02 48 02.00	−03 32 15.0	WL+SL	$7.01^{+0.54}_{-0.52}$	$6.71^{+1.2}_{-1.11}$	$8.77^{+0.67}_{-0.65}$	$7.67^{+1.37}_{-1.27}$	Zitrin et al. (2011)	Virial	0.3/0.7/0.7
Abell 383	0.188	02 48 02.00	−03 32 15.0	X-ray	$3.4^{+0.03}_{-0.42}$	$4.43^{+0.37}_{-0.37}$	$4.35^{+0.04}_{-0.54}$	$5.42^{+0.45}_{-0.45}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 383	0.188	02 48 02.00	−03 32 15.0	WL	$7.7^{+3.7}_{-3.7}$	$4.1^{+1.0}_{-1.0}$	$9.6^{+4.5}_{-4.5}$	$4.7^{+1.3}_{-1.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 383	0.188	02 48 02.00	−03 32 15.0	WL	$7.0^{+1.2}_{-1.2}$	$7.9^{+2.1}_{-2.1}$	$8.8^{+1.5}_{-1.5}$	$9.1^{+2.5}_{-2.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 383	0.188	02 48 02.00	−03 32 15.0	WL	$2.62^{+0.69}_{-0.69}$	$5.99^{+2.09}_{-2.09}$	$3.38^{+0.86}_{-0.86}$	$7.53^{+2.85}_{-2.85}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 383	0.188	02 48 02.00	−03 32 15.0	X-ray	$3.44^{+0.47}_{-0.36}$	$5.63^{+2.04}_{-1.19}$	$4.48^{+0.61}_{-0.47}$	$6.97^{+2.53}_{-1.47}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 383	0.188	02 48 02.00	−03 32 15.0	WL+SL	$4.4^{+1.0}_{-1.0}$	$8.7^{+0.7}_{-0.7}$	$5.6^{+1.3}_{-1.3}$	$10.4^{+0.7}_{-0.7}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
Abell 383	0.188	02 48 02.00	−03 32 15.0	X-ray	$3.76^{+0.53}_{-0.68}$	$6.62^{+2.56}_{-1.34}$	$4.78^{+0.65}_{-0.84}$	$7.95^{+3.28}_{-1.68}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
Abell 383	0.188	02 48 02.00	−03 32 15.0	X-ray	$6.41^{+0.57}_{-0.57}$	$4.1^{+0.47}_{-0.47}$	$8.03^{+0.7}_{-0.7}$	$4.72^{+0.57}_{-0.57}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 383	0.188	02 48 02.00	−03 32 15.0	WL	$6.97^{+4.1}_{-2.4}$	$3.13^{+0.99}_{-0.74}$	$8.87^{+5.22}_{-3.05}$	$3.62^{+1.15}_{-0.86}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
ZwCl 0839.9+2937	0.194	08 42 56.07	+29 27 25.7	WL	$8.2^{+4.4}_{-4.4}$	$2.9^{+0.9}_{-0.9}$	$10.2^{+5.4}_{-5.4}$	$3.3^{+1.1}_{-1.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ZwCl 0839.9+2937	0.194	08 42 56.07	+29 27 25.7	WL	$5.67^{+3.95}_{-2.13}$	$2.49^{+0.92}_{-0.7}$	$7.24^{+5.04}_{-2.72}$	$2.91^{+1.08}_{-0.82}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
ZwCl 0839.9+2937	0.194	08 42 56.07	+29 27 25.7	X-ray	$6.5^{+0.1}_{-0.1}$	6.1	$8.1^{+0.1}_{-0.1}$	7.0	Wang et al. (2005)	200	0.3/0.7/0.7
Abell 291	0.196	02 01 44.20	−02 12 03.0	WL	$1.8^{+0.9}_{-0.9}$	$7.7^{+2.3}_{-2.3}$	$2.4^{+1.1}_{-1.1}$	$10.1^{+3.7}_{-3.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 291	0.196	02 01 44.20	−02 12 03.0	WL	$1.76^{+1.0}_{-0.7}$	$5.19^{+2.29}_{-1.52}$	$2.36^{+1.34}_{-0.94}$	$7.02^{+3.1}_{-2.06}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 115	0.1971	00 55 59.76	+26 22 40.8	WL	$2.7^{+2.7}_{-2.7}$	$6.4^{+4.0}_{-4.0}$	$3.5^{+3.3}_{-3.3}$	$8.0^{+5.9}_{-5.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 115	0.1971	00 55 59.76	+26 22 40.8	WL	$2.83^{+3.86}_{-1.56}$	$4.26^{+3.24}_{-1.95}$	$3.69^{+5.03}_{-2.04}$	$5.36^{+4.08}_{-2.45}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 520	0.199	04 54 19.0	+02 56 49	WL	$2.24^{+1.48}_{-1.48}$	$6.86^{+3.32}_{-3.32}$	$2.9^{+1.82}_{-1.82}$	$8.77^{+3.4}_{-3.4}$	Okabe & Umetsu (2008)	Virial	0.3/0.7/0.7
Abell 520	0.199	04 54 19.0	+02 56 49	X-ray	3.79	129.0	4.8	154.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
Abell 2163	0.203	16 15 34.1	−06 07 26	WL	$2.18^{+0.57}_{-0.5}$	$26.94^{+5.7}_{-4.53}$	$2.84^{+0.71}_{-0.61}$	$34.63^{+8.57}_{-6.5}$	Okabe et al. (2011)	200/virial	0.3/0.7/None
Abell 2163	0.203	16 15 34.1	−06 07 26	X-ray	$2.04^{+0.37}_{-0.33}$	$111.18^{+5.92}_{-7.38}$	$2.7^{+0.49}_{-0.44}$	$145.93^{+7.77}_{-9.69}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 209	0.206	01 31 53.00	−13 36 34.0	WL	$3.4^{+3.1}_{-1.6}$	$7.7^{+4.3}_{-2.7}$	$4.4^{+4.0}_{-2.1}$	$9.5^{+5.3}_{-3.3}$	Paulin-Henriksson et al. (2007)	200	0.27/0.73/0.7
Abell 209	0.206	01 31 53.00	−13 36 34.0	X-ray	$3.03^{+0.67}_{-0.77}$	$8.6^{+1.23}_{-1.23}$	$3.87^{+0.86}_{-0.98}$	$10.59^{+1.51}_{-1.51}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 209	0.206	01 31 53.00	−13 36 34.0	WL	$2.1^{+0.5}_{-0.5}$	$14.4^{+2.7}_{-2.7}$	$2.7^{+0.6}_{-0.6}$	$18.5^{+4.0}_{-4.0}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 209	0.206	01 31 53.00	−13 36 34.0	WL	$3.0^{+0.3}_{-0.3}$	$23.1^{+3.7}_{-3.7}$	$3.8^{+0.4}_{-0.4}$	$28.5^{+4.9}_{-4.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 209	0.206	01 31 53.00	−13 36 34.0	WL	$3.0^{+0.92}_{-0.92}$	$10.27^{+2.91}_{-2.91}$	$3.83^{+1.13}_{-1.13}$	$12.66^{+3.99}_{-3.99}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 209	0.206	01 31 53.00	−13 36 34.0	X-ray	$3.11^{+0.77}_{-0.67}$	$12.05^{+2.34}_{-2.11}$	$4.04^{+1.0}_{-0.87}$	$15.01^{+2.91}_{-2.63}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 209	0.206	01 31 53.00	−13 36 34.0	WL+SL	$3.3^{+0.9}_{-0.9}$	$9.5^{+0.7}_{-0.7}$	$4.3^{+1.1}_{-1.1}$	$11.7^{+0.7}_{-0.7}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
Abell 209	0.206	01 31 53.00	−13 36 34.0	WL	$2.05^{+0.52}_{-0.45}$	$10.65^{+2.52}_{-1.98}$	$2.71^{+0.69}_{-0.6}$	$14.0^{+3.31}_{-2.6}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 963	0.206	10 17 13.9	+39 01 31	X-ray	$4.35^{+0.94}_{-0.76}$	$6.17^{+0.83}_{-0.83}$	$5.49^{+1.19}_{-0.96}$	$7.34^{+0.99}_{-0.99}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 963	0.206	10 17 13.9	+39 01 31	WL	$2.0^{+0.7}_{-0.7}$	$7.4^{+1.6}_{-1.6}$	$2.6^{+0.9}_{-0.9}$	$9.6^{+2.5}_{-2.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 963	0.206	10 17 13.9	+39 01 31	WL	$8.35^{+1.25}_{-1.25}$	$5.66^{+1.29}_{-1.29}$	$10.37^{+1.52}_{-1.52}$	$6.41^{+1.52}_{-1.52}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 963	0.206	10 17 13.9	+39 01 31	X-ray	$4.35^{+1.01}_{-0.99}$	$8.22^{+1.24}_{-0.91}$	$5.59^{+1.3}_{-1.27}$	$9.9^{+1.49}_{-1.1}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 963	0.206	10 17 13.9	+39 01 31	WL	$1.94^{+0.75}_{-0.6}$	$5.25^{+1.64}_{-1.2}$	$2.57^{+1.0}_{-0.79}$	$6.96^{+2.17}_{-1.59}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 963	0.206	10 17 13.9	+39 01 31	X-ray	$4.39^{+0.88}_{-0.88}$	$7.47^{+3.05}_{-1.8}$	$5.53^{+1.07}_{-1.08}$	$8.81^{+3.84}_{-2.21}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
Abell 963	0.206	10 17 13.9	+39 01 31	X-ray	$5.72^{+0.78}_{-1.07}$	$7.04^{+1.96}_{-1.26}$	$7.16^{+0.95}_{-1.31}$	$8.14^{+2.43}_{-1.51}$	Allen et al. (2003)	200	0.3/0.7/0.5
RX J0439.0+0520	0.208	04 39 02.2	+05 20 43	X-ray	$7.71^{+1.27}_{-1.77}$	$9.11^{+1.75}_{-2.27}$	$9.74^{+1.6}_{-2.24}$	$10.45^{+2.01}_{-2.6}$	Babyk et al. (2014)	200	0.27/0.73/0.73

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_{\odot}$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_{\odot}$)	Ref.	δ	$\Omega_{\rm m}/\Omega_{\Lambda}/h$
RX J0439.0+0520	0.208	04 39 02.2	+05 20 43	X-ray	$6.66^{+1.53}_{-1.21}$	$3.97^{+1.78}_{-1.19}$	$8.3^{+1.87}_{-1.48}$	$4.54^{+2.13}_{-1.4}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
RX J1504.1−0248	0.215	15 04 07.5	−02 48 16	X-ray	$3.77^{+1.05}_{-1.09}$	$17.5^{+13.5}_{-5.6}$	$4.75^{+1.28}_{-1.34}$	$20.9^{+17.3}_{-6.97}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
MS 0735.6+7421	0.216	07 41 44.8	+74 14 52	X-ray	6.85	22.0	8.51	25.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
Abell 773	0.217	09 17 59.4	+51 42 23	X-ray	$3.27^{+1.49}_{-1.05}$	$10.94^{+3.12}_{-3.12}$	$4.15^{+1.89}_{-1.33}$	$13.34^{+3.8}_{-3.8}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 773	0.217	09 17 59.4	+51 42 23	X-ray	$3.33^{+0.61}_{-0.53}$	$14.09^{+1.72}_{-1.28}$	$4.3^{+0.79}_{-0.68}$	$17.38^{+2.12}_{-1.58}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MS 1006.0+1202	0.221	10 08 47.9	+11 47 33	X-ray	4.19	31.0	5.26	36.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
Abell 2261	0.224	17 22 27.60	+32 07 37.2	WL	$4.1^{+0.6}_{-0.6}$	$17.7^{+1.1}_{-1.1}$	$5.2^{+0.7}_{-0.7}$	$21.1^{+1.6}_{-1.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 2261	0.224	17 22 27.60	+32 07 37.2	WL	$4.8^{+0.5}_{-0.5}$	$19.7^{+2.4}_{-2.4}$	$6.0^{+0.6}_{-0.6}$	$23.2^{+3.0}_{-3.0}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 2261	0.224	17 22 27.60	+32 07 37.2	WL	$5.13^{+1.52}_{-1.12}$	$16.62^{+3.2}_{-2.71}$	$6.4^{+1.9}_{-1.4}$	$19.29^{+3.71}_{-3.14}$	Umetsu et al. (2009)	Virial	0.3/0.7/0.7
Abell 2261	0.224	17 22 27.60	+32 07 37.2	WL+SL	$3.4^{+1.4}_{-1.4}$	$14.2^{+1.7}_{-1.7}$	$4.4^{+1.8}_{-1.8}$	$17.6^{+1.8}_{-1.8}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
Abell 2261	0.224	17 22 27.60	+32 07 37.2	WL	$4.75^{+1.34}_{-1.03}$	$8.04^{+1.7}_{-1.43}$	$6.04^{+1.71}_{-1.31}$	$9.49^{+2.01}_{-1.69}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
ZwCl 0823.2+0425	0.2248	08 25 59.3	+04 15 47	WL	$2.6^{+1.2}_{-1.2}$	$7.9^{+2.1}_{-2.1}$	$3.3^{+1.5}_{-1.5}$	$9.8^{+3.1}_{-3.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 1763	0.228	13 35 18.2	+40 59 49	X-ray	$7.5^{+2.3}_{-3.41}$	$4.25^{+0.74}_{-0.74}$	$9.28^{+2.85}_{-4.22}$	$4.83^{+0.84}_{-0.84}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1763	0.228	13 35 18.2	+40 59 49	WL	$2.63^{+0.63}_{-0.63}$	$19.8^{+3.76}_{-3.76}$	$3.36^{+0.77}_{-0.77}$	$24.62^{+5.31}_{-5.31}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 2219	0.2281	16 40 21.4	+46 42 21	WL	$6.6^{+2.9}_{-2.9}$	$11.7^{+2.7}_{-2.7}$	$8.2^{+3.5}_{-3.5}$	$13.4^{+3.5}_{-3.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 2219	0.2281	16 40 21.4	+46 42 21	WL	$3.84^{+0.99}_{-0.99}$	$29.91^{+6.21}_{-6.21}$	$4.84^{+1.21}_{-1.21}$	$35.83^{+8.29}_{-8.29}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 2219	0.2281	16 40 21.4	+46 42 21	X-ray	$3.44^{+0.73}_{-0.73}$	$36.49^{+4.92}_{-3.39}$	$4.42^{+0.94}_{-0.94}$	$44.75^{+6.03}_{-4.16}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2219	0.2281	16 40 21.4	+46 42 21	WL	$5.44^{+2.7}_{-1.71}$	$7.8^{+2.17}_{-1.76}$	$6.88^{+3.42}_{-2.16}$	$9.11^{+2.54}_{-2.06}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 267	0.23	01 52 48.72	+01 01 08.4	WL	$5.1^{+1.8}_{-1.8}$	$4.3^{+1.0}_{-1.0}$	$6.4^{+2.2}_{-2.2}$	$5.0^{+1.3}_{-1.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 267	0.23	01 52 48.72	+01 01 08.4	WL	$4.54^{+2.01}_{-2.01}$	$3.89^{+2.09}_{-2.09}$	$5.69^{+2.45}_{-2.45}$	$4.59^{+2.64}_{-2.64}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 267	0.23	01 52 48.72	+01 01 08.4	WL	$4.73^{+1.66}_{-1.25}$	$3.26^{+0.91}_{-0.75}$	$6.0^{+2.11}_{-1.58}$	$3.85^{+1.08}_{-0.88}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 2390	0.23	21 53 35.5	+17 41 12	X-ray	$2.06^{+0.12}_{-0.04}$	$24.71^{+1.16}_{-1.16}$	$2.65^{+0.15}_{-0.05}$	$31.57^{+1.48}_{-1.48}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 2390	0.23	21 53 35.5	+17 41 12	WL	$5.3^{+1.3}_{-1.3}$	$9.7^{+2.1}_{-2.1}$	$6.6^{+1.6}_{-1.6}$	$11.3^{+2.7}_{-2.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 2390	0.23	21 53 35.5	+17 41 12	WL	$5.55^{+1.85}_{-1.21}$	$11.15^{+1.86}_{-1.73}$	$6.9^{+2.3}_{-1.5}$	$12.86^{+2.14}_{-2.0}$	Umetsu et al. (2009)	Virial	0.3/0.7/0.7
Abell 2390	0.23	21 53 35.5	+17 41 12	WL	$5.26^{+1.43}_{-1.43}$	$13.47^{+3.51}_{-3.51}$	$6.56^{+1.74}_{-1.74}$	$15.7^{+4.43}_{-4.43}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 2390	0.23	21 53 35.5	+17 41 12	X-ray	$2.11^{+0.52}_{-0.62}$	$28.21^{+3.15}_{-2.39}$	$2.76^{+0.68}_{-0.81}$	$36.57^{+4.08}_{-3.1}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2390	0.23	21 53 35.5	+17 41 12	WL	$4.89^{+1.21}_{-1.01}$	$6.97^{+1.64}_{-1.39}$	$6.2^{+1.53}_{-1.28}$	$8.2^{+1.93}_{-1.63}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 2390	0.23	21 53 35.5	+17 41 12	X-ray	$2.58^{+0.19}_{-0.19}$	$16.58^{+1.93}_{-1.93}$	$3.28^{+0.23}_{-0.23}$	$20.45^{+2.57}_{-2.57}$	Vikhlinin et al. (2006)	500	0.3/0.7/0.71
Abell 2390	0.23	21 53 35.5	+17 41 12	X-ray	$3.2^{+1.79}_{-1.57}$	$20.6^{+59.7}_{-11.6}$	$4.04^{+2.18}_{-1.93}$	$24.9^{+79.7}_{-14.4}$	Allen et al. (2003)	200	0.3/0.7/0.5
Abell 2667	0.233	23 51 40.7	−26 05 01	X-ray	$2.24^{+0.08}_{-0.02}$	$15.88^{+0.45}_{-0.45}$	$2.87^{+0.1}_{-0.03}$	$20.08^{+0.57}_{-0.57}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 2667	0.233	23 51 40.7	−26 05 01	X-ray	$2.25^{+0.17}_{-0.15}$	$19.71^{+2.61}_{-1.27}$	$2.94^{+0.22}_{-0.2}$	$25.32^{+3.35}_{-1.63}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2667	0.233	23 51 40.7	−26 05 01	X-ray	$3.02^{+0.74}_{-0.85}$	$13.6^{+10.6}_{-4.6}$	$3.82^{+0.9}_{-1.04}$	$16.5^{+13.9}_{-5.8}$	Allen et al. (2003)	200	0.3/0.7/0.5
RX J2129.6+0005	0.235	21 29 37.92	+00 05 38.4	X-ray	$3.71^{+0.27}_{-0.38}$	$5.4^{+0.44}_{-0.44}$	$4.67^{+0.34}_{-0.48}$	$6.48^{+0.53}_{-0.53}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RX J2129.6+0005	0.235	21 29 37.92	+00 05 38.4	WL	$2.0^{+1.2}_{-1.2}$	$9.7^{+3.6}_{-3.6}$	$2.6^{+1.5}_{-1.5}$	$12.4^{+5.5}_{-5.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RX J2129.6+0005	0.235	21 29 37.92	+00 05 38.4	WL	$6.7^{+0.9}_{-0.9}$	$6.1^{+1.1}_{-1.1}$	$8.3^{+1.1}_{-1.1}$	$7.0^{+1.3}_{-1.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RX J2129.6+0005	0.235	21 29 37.92	+00 05 38.4	X-ray	$3.77^{+0.38}_{-0.33}$	$8.46^{+0.94}_{-1.1}$	$4.82^{+0.49}_{-0.42}$	$10.26^{+1.14}_{-1.33}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RX J2129.6+0005	0.235	21 29 37.92	+00 05 38.4	WL+SL	$4.3^{+1.4}_{-1.4}$	$6.1^{+0.6}_{-0.6}$	$5.6^{+1.7}_{-1.7}$	$7.3^{+0.7}_{-0.7}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
RX J2129.6+0005	0.235	21 29 37.92	+00 05 38.4	WL	$2.56^{+1.67}_{-1.03}$	$5.32^{+2.16}_{-1.55}$	$3.32^{+2.16}_{-1.34}$	$6.71^{+2.73}_{-1.96}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
RX J2129.6+0005	0.235	21 29 37.92	+00 05 38.4	X-ray	$4.07^{+2.31}_{-1.97}$	$6.46^{+12.6}_{-3.14}$	$5.09^{+2.8}_{-2.41}$	$7.63^{+16.3}_{-3.83}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
ZwCl 1305.4+2941	0.241	13 07 49.2	+29 25 48	X-ray	$6.39^{+0.41}_{-0.41}$	$2.43^{+0.19}_{-0.19}$	$7.9^{+0.5}_{-0.5}$	$2.77^{+0.21}_{-0.21}$	Gastaldello et al. (2008)	Virial	0.3/0.7/0.7
MS 1910.5+6736	0.246	19 10 27.3	+67 41 27	X-ray	4.65	8.7	5.78	10.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
Abell 2485	0.2472	22 48 31.13	−16 06 25.6	WL	$3.1^{+1.8}_{-1.8}$	$4.9^{+1.7}_{-1.7}$	$3.9^{+2.2}_{-2.2}$	$6.0^{+2.4}_{-2.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 2485	0.2472	22 48 31.13	−16 06 25.6	WL	$2.73^{+1.74}_{-1.12}$	$3.66^{+1.48}_{-1.11}$	$3.52^{+2.24}_{-1.44}$	$4.56^{+1.84}_{-1.38}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 521	0.2475	04 54 09.1	−10 14 19	WL	$1.6^{+0.4}_{-0.4}$	$6.9^{+1.7}_{-1.7}$	$2.1^{+0.5}_{-0.5}$	$9.1^{+2.5}_{-2.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 521	0.2475	04 54 09.1	−10 14 19	X-ray	$11.26^{+0.83}_{-0.78}$	$7.21^{+1.16}_{-1.13}$	$13.97^{+1.03}_{-0.97}$	$8.04^{+1.29}_{-1.26}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 521	0.2475	04 54 09.1	−10 14 19	WL	$2.36^{+0.78}_{-0.61}$	$4.6^{+1.14}_{-0.96}$	$3.06^{+1.01}_{-0.79}$	$5.85^{+1.45}_{-1.22}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 1835	0.2528	14 01 02.3	+02 52 48	X-ray	$2.64^{+0.34}_{-0.09}$	$17.53^{+1.41}_{-1.41}$	$3.34^{+0.43}_{-0.11}$	$21.66^{+1.74}_{-1.74}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1835	0.2528	14 01 02.3	+02 52 48	WL	$8.0^{+10.9}_{-8.0}$	$11.0^{+4.3}_{-4.3}$	$9.8^{+13.4}_{-9.8}$	$12.4^{+4.8}_{-4.8}$	Corless et al. (2009)	200	0.3/0.7/0.7
Abell 1835	0.2528	14 01 02.3	+02 52 48	WL	$2.7^{+0.8}_{-0.8}$	$15.0^{+3.3}_{-3.3}$	$3.4^{+1.0}_{-1.0}$	$18.5^{+4.6}_{-4.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 1835	0.2528	14 01 02.3	+02 52 48	WL	$2.58^{+0.48}_{-0.48}$	$38.67^{+5.91}_{-5.91}$	$3.27^{+0.59}_{-0.59}$	$47.89^{+8.25}_{-8.25}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 1835	0.2528	14 01 02.3	+02 52 48	X-ray	$2.66^{+0.35}_{-0.44}$	$22.86^{+2.86}_{-3.11}$	$3.43^{+0.45}_{-0.57}$	$28.65^{+3.58}_{-3.9}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1835	0.2528	14 01 02.3	+02 52 48	WL	$2.6^{+0.77}_{-0.61}$	$10.92^{+2.91}_{-2.28}$	$3.35^{+0.99}_{-0.79}$	$13.69^{+3.65}_{-2.86}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 1835	0.252	14 01 02.3	+02 52 48	WL	2.9	–	3.7	–	Clowe (2003)	200	0.3/0.7/0.7
Abell 1835	0.252	14 01 02.3	+02 52 48	WL	2.96	$23.8^{+3.5}_{-3.2}$	3.72	$28.8^{+4.2}_{-3.9}$	Clowe & Schneider (2002)	200	0.3/0.7/None
Abell 1835	0.252	14 01 02.3	+02 52 48	WL	4.8	–	5.96	–	Clowe & Schneider (2001a)	200	0.3/0.7/0.7
Abell 1835	0.252	14 01 02.3	+02 52 48	X-ray	$3.42^{+0.45}_{-0.31}$	$21.2^{+4.62}_{-5.03}$	$4.28^{+0.55}_{-0.37}$	$25.3^{+5.78}_{-6.21}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
Abell 1835	0.252	14 01 02.3	+02 52 48	X-ray	$3.13^{+1.37}_{-1.44}$	$24.0^{+104.0}_{-16.0}$	$3.93^{+1.66}_{-1.76}$	$29.0^{+136.0}_{-20.0}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
Abell 1835	0.252	14 01 02.3	+02 52 48	X-ray	$4.21^{+0.53}_{-0.61}$	$18.2^{+8.4}_{-3.0}$	$5.24^{+0.64}_{-0.74}$	$21.4^{+10.3}_{-3.7}$	Allen et al. (2003)	200	0.3/0.7/0.5
RXC J0307.0−2840	0.253	03 07 04.1	−28 40 14	X-ray	$3.15^{+0.88}_{-0.78}$	$10.44^{+2.39}_{-2.39}$	$3.97^{+1.11}_{-0.98}$	$12.67^{+2.9}_{-2.9}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J0307.0−2840	0.253	03 07 04.1	−28 40 14	X-ray	$3.22^{+0.88}_{-0.77}$	$12.62^{+1.72}_{-1.82}$	$4.12^{+1.13}_{-0.99}$	$15.5^{+2.11}_{-2.24}$	Babyk et al. (2014)	200	0.27/0.73/0.73
ZwCl 0104.4+0048	0.2545	01 06 48.48	+01 02 42.0	WL	$7.9^{+4.7}_{-4.7}$	$2.0^{+0.6}_{-0.6}$	$9.7^{+5.7}_{-5.7}$	$2.3^{+0.8}_{-0.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_\odot$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_\odot$)	Ref.	δ	Ω_m/Ω_Λ/h
ZwCl 0104.4+0048	0.2545	01 06 48.48	+01 02 42.0	WL	$6.46^{+6.56}_{-2.74}$	$1.51^{+0.51}_{-0.41}$	$8.08^{+8.2}_{-3.43}$	$1.73^{+0.58}_{-0.47}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 68	0.2546	00 37 05.28	+09 09 10.8	X-ray	$2.65^{+0.82}_{-0.06}$	$15.96^{+1.97}_{-1.97}$	$3.35^{+1.04}_{-0.08}$	$19.7^{+2.43}_{-2.43}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 68	0.2546	00 37 05.28	+09 09 10.8	WL	$4.9^{+3.8}_{-3.8}$	$4.4^{+1.7}_{-1.7}$	$6.1^{+4.6}_{-4.6}$	$5.1^{+2.3}_{-2.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 68	0.2546	00 37 05.28	+09 09 10.8	WL	$3.84^{+1.13}_{-1.13}$	$8.86^{+2.81}_{-2.81}$	$4.8^{+1.37}_{-1.37}$	$10.56^{+3.62}_{-3.62}$	Bardeau et al. (2007)	200	0.3/0.7/0.7
Abell 68	0.2546	00 37 05.28	+09 09 10.8	WL	$3.15^{+2.63}_{-1.43}$	$4.49^{+2.09}_{-1.48}$	$4.02^{+3.36}_{-1.82}$	$5.49^{+2.56}_{-1.81}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
ZwCl 1454.8+2233	0.2578	14 57 14.40	+22 20 38.4	WL	$3.6^{+2.8}_{-2.8}$	$3.7^{+2.0}_{-2.0}$	$4.5^{+3.4}_{-3.4}$	$4.4^{+2.7}_{-2.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ZwCl 1454.8+2233	0.2578	14 57 14.40	+22 20 38.4	WL	$3.14^{+2.69}_{-1.53}$	$2.82^{+1.65}_{-1.11}$	$4.01^{+3.44}_{-1.96}$	$3.45^{+2.02}_{-1.36}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
MS 1455.0+2232	0.259	14 57 15.1	+22 20 34	X-ray	$6.32^{+0.53}_{-0.51}$	$3.66^{+0.29}_{-0.29}$	$7.79^{+0.65}_{-0.63}$	$4.19^{+0.33}_{-0.33}$	Ettori et al. (2011)	200	0.3/0.7/0.7
MS 1455.0+2232	0.259	14 57 15.1	+22 20 34	X-ray	10.9	14.0	13.2	15.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
J0454−0309	0.26	04 54 10.0	−03 09 00	WL	$9.5^{+4.8}_{-4.8}$	$0.84^{+0.66}_{-0.66}$	$11.79^{+5.84}_{-5.84}$	$0.94^{+0.77}_{-0.77}$	Schirmer et al. (2010)	200	0.27/0.73/0.7
RXC J2337.6+0016	0.273	23 37 40.6	+00 16 36	X-ray	$4.99^{+3.52}_{-2.18}$	$6.81^{+1.91}_{-1.91}$	$6.17^{+4.35}_{-2.7}$	$7.91^{+2.22}_{-2.22}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J2337.6+0016	0.273	23 37 40.6	+00 16 36	WL	$6.6^{+2.5}_{-2.5}$	$6.4^{+1.1}_{-1.1}$	$8.1^{+3.0}_{-3.0}$	$7.3^{+1.4}_{-1.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RXC J2337.6+0016	0.273	23 37 40.6	+00 16 36	X-ray	$5.02^{+1.55}_{-1.77}$	$8.5^{+1.01}_{-0.89}$	$6.3^{+1.95}_{-2.22}$	$9.98^{+1.19}_{-1.04}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RXC J0303.8-7752	0.274	03 03 46.4	−77 52 09	X-ray	$1.85^{+1.04}_{-0.09}$	$13.21^{+2.33}_{-2.33}$	$2.36^{+1.33}_{-0.11}$	$16.88^{+2.98}_{-2.98}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J0532.9-3701	0.275	05 32 56.0	−37 01 34	X-ray	$5.97^{+2.43}_{-1.82}$	$6.88^{+1.83}_{-1.83}$	$7.34^{+2.99}_{-2.24}$	$7.88^{+2.1}_{-2.1}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Abell 1703	0.277	13 15 05.24	+51 49 02.6	SL	$4.0^{+0.5}_{-0.5}$	$20.2^{+5.9}_{-4.9}$	$5.1^{+0.7}_{-0.7}$	$24.1^{+7.0}_{-5.8}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
Abell 1703	0.277	13 15 05.24	+51 49 02.6	WL	$2.6^{+1.1}_{-0.9}$	$15.5^{+5.2}_{-4.0}$	$3.3^{+1.4}_{-1.1}$	$19.5^{+6.5}_{-5.0}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
Abell 1703	0.277	13 15 05.24	+51 49 02.6	WL+SL	$5.2^{+1.0}_{-0.6}$	$12.9^{+3.4}_{-3.0}$	$6.5^{+1.2}_{-0.7}$	$15.0^{+4.0}_{-3.5}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
Abell 1703	0.277	13 15 05.24	+51 49 02.6	WL+SL	$5.8^{+0.4}_{-0.4}$	$15.3^{+1.8}_{-1.8}$	$7.15^{+0.5}_{-0.5}$	$17.4^{+2.1}_{-2.1}$	Zitrin et al. (2010)	Virial	0.3/0.7/0.7
Abell 1703	0.277	13 15 05.24	+51 49 02.6	WL	$6.3^{+1.8}_{-1.4}$	$14.4^{+3.5}_{-2.7}$	$7.71^{+2.22}_{-1.66}$	$16.4^{+4.0}_{-3.1}$	Zitrin et al. (2010)	Virial	0.3/0.7/0.7
Abell 1703	0.277	13 15 05.24	+51 49 02.6	WL	$5.6^{+0.8}_{-0.8}$	$13.6^{+2.0}_{-2.0}$	$6.9^{+1.0}_{-1.0}$	$15.7^{+2.5}_{-2.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 1703	0.277	13 15 05.24	+51 49 02.6	WL	$5.72^{+1.92}_{-1.39}$	$15.41^{+3.06}_{-2.55}$	$7.02^{+2.36}_{-1.7}$	$17.6^{+3.49}_{-2.91}$	Umetsu et al. (2011a)	Virial	0.3/0.7/0.7
Abell 1703	0.277	13 15 05.24	+51 49 02.6	WL	$3.81^{+0.99}_{-0.82}$	$10.82^{+2.19}_{-1.82}$	$4.79^{+1.24}_{-1.03}$	$12.88^{+2.61}_{-2.17}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
Abell 1703	0.277	13 15 05.24	+51 49 02.6	WL+SL	$5.69^{+0.92}_{-0.68}$	$9.52^{+1.67}_{-1.42}$	$7.08^{+1.14}_{-0.84}$	$10.96^{+1.92}_{-1.63}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
Abell 2631	0.278	23 37 40.08	+00 16 33.6	WL	$6.3^{+2.84}_{-1.83}$	$4.57^{+1.0}_{-0.85}$	$7.84^{+3.54}_{-2.28}$	$5.24^{+1.15}_{-0.98}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 1758N	0.279	13 32 32.1	+50 30 37	WL	$0.16^{+0.68}_{-0.68}$	$3.74^{+6.8}_{-6.8}$	$0.24^{+0.95}_{-0.95}$	$7.51^{+8.14}_{-8.14}$	Okabe & Umetsu (2008)	Virial	0.3/0.7/0.7
Abell 1758S	0.279	13 32 32.1	+50 30 37	WL	$3.13^{+5.41}_{-5.41}$	$1.42^{+1.63}_{-1.63}$	$3.91^{+6.51}_{-6.51}$	$1.71^{+1.64}_{-1.64}$	Okabe & Umetsu (2008)	Virial	0.3/0.7/0.7
Abell 689	0.2793	08 37 25.4	+14 58 59	WL	$1.5^{+1.6}_{-1.6}$	$1.6^{+0.9}_{-0.9}$	$1.9^{+2.0}_{-2.0}$	$2.1^{+1.5}_{-1.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RX J0142.0+2131	0.2803	01 42 02.64	+21 31 19.2	WL	$5.4^{+1.6}_{-1.6}$	$6.0^{+1.3}_{-1.3}$	$6.6^{+1.9}_{-1.9}$	$6.9^{+1.7}_{-1.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RX J0142.0+2131	0.2803	01 42 02.64	+21 31 19.2	WL	$5.71^{+2.17}_{-1.52}$	$3.89^{+1.07}_{-0.88}$	$7.12^{+2.71}_{-1.89}$	$4.49^{+1.23}_{-1.01}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
XMMU J131359.7−162735	0.281	13 13 59.7	−16 27 35	X-ray	$5.5^{+0.3}_{-0.3}$	$3.4^{+0.32}_{-0.32}$	$6.7^{+0.4}_{-0.4}$	$3.89^{+0.35}_{-0.35}$	Gastaldello et al. (2007a)	Virial	0.3/0.7/0.7
Abell 697	0.282	08 42 56.7	+36 21 45	WL	$2.5^{+0.7}_{-0.7}$	$13.1^{+2.4}_{-2.4}$	$3.1^{+0.9}_{-0.9}$	$16.2^{+3.4}_{-3.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 697	0.282	08 42 56.7	+36 21 45	X-ray	$5.58^{+1.11}_{-1.22}$	$13.56^{+1.27}_{-1.14}$	$6.97^{+1.39}_{-1.52}$	$15.76^{+1.48}_{-1.32}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 697	0.282	08 42 56.7	+36 21 45	WL	$2.31^{+0.66}_{-0.54}$	$9.78^{+2.12}_{-1.75}$	$2.97^{+0.85}_{-0.69}$	$12.36^{+2.68}_{-2.21}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
RXC J0232.2−4420	0.283	02 32 18.7	−44 20 41	X-ray	$1.8^{+0.66}_{-0.04}$	$14.28^{+1.9}_{-1.9}$	$2.29^{+0.84}_{-0.05}$	$18.26^{+2.43}_{-2.43}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J0232.2−4420	0.283	02 32 18.7	−44 20 41	X-ray	$1.88^{+0.67}_{-0.66}$	$18.25^{+2.16}_{-1.82}$	$2.43^{+0.87}_{-0.85}$	$23.64^{+2.8}_{-2.36}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 611	0.288	08 00 58.9	+36 02 50	WL	$3.7^{+1.4}_{-1.4}$	$7.4^{+1.7}_{-1.7}$	$4.6^{+1.7}_{-1.7}$	$8.8^{+2.3}_{-2.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 611	0.288	08 00 58.9	+36 02 50	WL	$4.5^{+0.8}_{-0.8}$	$14.6^{+3.6}_{-3.6}$	$5.6^{+1.0}_{-1.0}$	$17.1^{+4.4}_{-4.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
Abell 611	0.288	08 00 58.9	+36 02 50	WL+SL	$3.4^{+0.9}_{-0.9}$	$8.5^{+0.5}_{-0.5}$	$4.3^{+1.1}_{-1.1}$	$10.3^{+0.7}_{-0.7}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
Abell 611	0.288	08 00 58.9	+36 02 50	WL	$3.35^{+1.4}_{-0.97}$	$5.51^{+1.45}_{-1.18}$	$4.23^{+1.77}_{-1.23}$	$6.65^{+1.75}_{-1.42}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Abell 611	0.288	08 00 58.9	+36 02 50	X-ray	$5.08^{+1.72}_{-1.61}$	$6.81^{+4.68}_{-2.11}$	$6.24^{+2.06}_{-1.94}$	$7.83^{+5.78}_{-2.53}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
Abell 611	0.288	08 00 58.9	+36 02 50	X-ray	$4.58^{+2.36}_{-2.22}$	$9.4^{+16.6}_{-3.9}$	$5.64^{+2.83}_{-2.68}$	$11.0^{+21.0}_{-5.0}$	Allen et al. (2003)	200	0.3/0.7/0.5
ZwCl 1459.4+4240	0.2897	15 01 23.13	+42 20 39.6	WL	$8.3^{+3.9}_{-3.9}$	$3.7^{+1.1}_{-1.1}$	$10.1^{+4.7}_{-4.7}$	$4.1^{+1.3}_{-1.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ZwCl 1459.4+4240	0.2897	15 01 23.13	+42 20 39.6	WL	$5.26^{+2.68}_{-1.75}$	$3.8^{+1.3}_{-1.04}$	$6.55^{+3.34}_{-2.18}$	$4.4^{+1.5}_{-1.2}$	Okabe et al. (2010)	Virial	0.27/0.73/0.72
Zwicky 3146	0.291	10 23 39.6	+04 11 10	X-ray	$3.37^{+0.15}_{-0.26}$	$7.79^{+0.49}_{-0.49}$	$4.19^{+0.19}_{-0.32}$	$9.32^{+0.59}_{-0.59}$	Ettori et al. (2011)	200	0.3/0.7/0.7
Zwicky 3146	0.291	10 23 39.6	+04 11 10	X-ray	$2.32^{+2.31}_{-2.32}$	$28.1^{+\infty}_{-16.3}$	$2.91^{+2.78}_{-2.91}$	$34.5^{+\infty}_{-20.9}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
RXC J0043.4−2037	0.292	00 43 24.4	−20 37 17	X-ray	$7.8^{+5.05}_{-3.51}$	$4.7^{+1.24}_{-1.24}$	$9.5^{+6.15}_{-4.27}$	$5.28^{+1.39}_{-1.39}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J0043.4−2037	0.292	00 43 24.4	−20 37 17	X-ray	$8.01^{+3.89}_{-3.03}$	$6.38^{+0.82}_{-0.84}$	$9.9^{+4.81}_{-3.74}$	$7.22^{+0.93}_{-0.95}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RXC J0516.7−5430	0.294	05 16 35.2	−54 16 37	X-ray	$2.41^{+2.82}_{-0.75}$	$10.44^{+2.88}_{-2.88}$	$3.03^{+3.55}_{-0.94}$	$12.89^{+3.56}_{-3.56}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J0516.7−5430	0.294	05 16 35.2	−54 16 37	X-ray	$2.45^{+1.55}_{-0.77}$	$13.96^{+1.54}_{-1.22}$	$3.13^{+1.98}_{-0.98}$	$17.48^{+1.93}_{-1.53}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2537	0.295	23 08 23.2	−02 11 31	X-ray	$4.88^{+0.24}_{-0.24}$	$16.12^{+2.16}_{-2.19}$	$6.1^{+0.3}_{-0.3}$	$18.89^{+2.53}_{-2.57}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2537	0.295	23 08 23.2	−02 11 31	X-ray	$4.83^{+2.32}_{-1.59}$	$7.58^{+5.88}_{-3.04}$	$5.93^{+2.78}_{-1.91}$	$8.74^{+7.28}_{-3.64}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
MS 1008.1−1224	0.301	10 10 32.2	−12 39 55	X-ray	4.4	34.0	5.4	39.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
RXC J1131.9−1955	0.307	11 31 54.4	−19 55 42	X-ray	$2.43^{+1.16}_{-0.76}$	$11.31^{+2.5}_{-2.5}$	$3.04^{+1.45}_{-0.95}$	$13.91^{+3.07}_{-3.07}$	Ettori et al. (2011)	200	0.3/0.7/0.7
RXC J1131.9−1955	0.307	11 31 54.4	−19 55 42	X-ray	$2.55^{+1.24}_{-1.67}$	$15.43^{+1.45}_{-1.66}$	$3.24^{+1.58}_{-2.12}$	$19.17^{+1.8}_{-2.06}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 2744	0.308	00 14 18.9	−30 23 22	X-ray	$1.72^{+0.15}_{-0.17}$	$22.17^{+2.14}_{-2.26}$	$2.22^{+0.19}_{-0.22}$	$28.83^{+2.78}_{-2.94}$	Babyk et al. (2014)	200	0.27/0.73/0.73
GHO132029+3155	0.308	13 22 48.77	+31 39 17.8	WL	$12.3^{+3.2}_{-3.2}$	$3.9^{+0.6}_{-0.6}$	$14.8^{+3.8}_{-3.8}$	$4.3^{+0.7}_{-0.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7
GHO132029+3155	0.308	13 22 48.77	+31 39 17.8	WL	$7.17^{+2.73}_{-1.91}$	$3.03^{+0.57}_{-0.51}$	$8.81^{+3.35}_{-2.35}$	$3.43^{+0.65}_{-0.58}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
GHO132029+3155	0.308	13 22 48.77	+31 39 17.8	WL+SL	$12.86^{+3.71}_{-2.29}$	$2.68^{+0.47}_{-0.45}$	$15.67^{+4.52}_{-2.79}$	$2.95^{+0.52}_{-0.5}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	SL	$9.5^{+1.29}_{-0.87}$	$4.11^{+0.75}_{-0.46}$	$11.47^{+1.56}_{-1.05}$	$4.55^{+0.83}_{-0.51}$	Donnarumma et al. (2009)	200	0.3/0.7/0.7
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	X-ray	$8.68^{+0.71}_{-0.91}$	$4.43^{+0.25}_{-0.25}$	$10.49^{+0.86}_{-1.1}$	$4.93^{+0.28}_{-0.28}$	Donnarumma et al. (2009)	200	0.3/0.7/0.7

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_{\odot}$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_{\odot}$)	Ref.	δ	$\Omega_m/\Omega_\Lambda/h$
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	WL	$5.2^{+0.9}_{-0.9}$	$10.2^{+2.4}_{-2.4}$	$6.4^{+1.1}_{-1.1}$	$11.7^{+2.9}_{-2.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	WL+SL	$3.1^{+0.6}_{-0.6}$	$10.4^{+0.6}_{-0.6}$	$4.0^{+0.7}_{-0.7}$	$12.6^{+0.6}_{-0.6}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	SL	$13.0^{+1.0}_{-1.0}$	$2.9^{+0.4}_{-0.4}$	$16.0^{+1.0}_{-1.0}$	$3.2^{+0.4}_{-0.4}$	Comerford & Natarajan (2007)	200/virial	0.3/0.7/0.7
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	SL	$11.92^{+0.77}_{-0.74}$	$7.56^{+0.63}_{-0.54}$	$14.34^{+0.91}_{-0.88}$	$8.29^{+0.71}_{-0.61}$	Gavazzi (2005)	200	0.3/0.7/0.7
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	SL	$12.5^{+5.0}_{-6.0}$	7.9	$15.0^{+6.0}_{-7.0}$	8.6	Gavazzi et al. (2003)	200	0.3/0.7/None
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	SL	$11.7^{+2.1}_{-2.1}$	$7.23^{+1.9}_{-1.9}$	$14.1^{+2.5}_{-2.5}$	$7.93^{+2.17}_{-2.17}$	Gavazzi (2002)	200	0.3/0.7/None
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	WL	$12.0^{+12.0}_{-8.0}$	$9.3^{+85.4}_{-7.8}$	$14.0^{+14.0}_{-10.0}$	$10.0^{+100.0}_{-9.0}$	Gavazzi et al. (2003)	200	0.3/0.7/None
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	WL+SL	$11.73^{+0.55}_{-0.55}$	$7.72^{+0.47}_{-0.42}$	$14.11^{+0.65}_{-0.65}$	$8.47^{+0.53}_{-0.48}$	Gavazzi (2005)	200	0.3/0.7/0.7
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	X-ray	$7.21^{+0.58}_{-0.59}$	$4.7^{+0.81}_{-0.56}$	$8.75^{+0.69}_{-0.71}$	$5.27^{+0.94}_{-0.65}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	X-ray	$5.28^{+2.41}_{-2.52}$	$8.0^{+32.0}_{-4.8}$	$6.44^{+2.87}_{-3.02}$	$9.1^{+39.0}_{-5.6}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	X-ray	$8.71^{+1.22}_{-0.92}$	$4.25^{+0.84}_{-0.88}$	$10.5^{+1.5}_{-1.1}$	$4.72^{+0.96}_{-1.0}$	Allen et al. (2003)	200	0.3/0.7/0.5
MS 2137.3−2353	0.313	21 40 15.2	−23 39 40	X-ray	12.4	11.0	14.9	12.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
MACS J0242.6−2132	0.314	02 42 35.9	−21 32 26	X-ray	$7.88^{+1.64}_{-1.23}$	$27.44^{+1.99}_{-2.19}$	$9.69^{+2.02}_{-1.51}$	$30.97^{+2.25}_{-2.47}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J0242.6−2132	0.314	02 42 35.9	−21 32 26	X-ray	$6.69^{+1.23}_{-0.92}$	$4.85^{+1.64}_{-1.31}$	$8.12^{+1.46}_{-1.09}$	$5.47^{+1.92}_{-1.51}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
MACS J1427.6−2521	0.318	14 27 39.4	−25 21 02	X-ray	$8.28^{+1.99}_{-1.77}$	$25.04^{+2.36}_{-2.26}$	$10.16^{+2.44}_{-2.17}$	$28.16^{+2.65}_{-2.54}$	Babyk et al. (2014)	200	0.27/0.73/0.73
Abell 1995	0.318	14 52 56.1	+58 02 56	X-ray	$3.17^{+0.38}_{-0.33}$	$45.32^{+5.16}_{-3.18}$	$3.99^{+0.48}_{-0.42}$	$54.96^{+6.26}_{-3.86}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MS 0353.6−3642	0.32	03 55 33.3	−36 34 18	X-ray	4.84	32.0	5.91	36.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
MACS J2229.8−2756	0.324	22 29 45.2	−27 55 37	X-ray	$8.54^{+1.67}_{-1.36}$	$46.06^{+4.92}_{-5.17}$	$10.46^{+2.05}_{-1.67}$	$51.67^{+5.52}_{-5.8}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J2229.8−2756	0.324	22 29 45.2	−27 55 37	X-ray	$7.7^{+3.66}_{-2.62}$	$2.74^{+2.02}_{-1.0}$	$9.3^{+4.34}_{-3.11}$	$3.06^{+2.38}_{-1.15}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
MS 1224.7+2007	0.327	12 27 13.5	+19 50 55	X-ray	11.3	9.2	13.5	10.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
MS 1358.4+6245	0.328	13 59 53.1	+62 31 16	X-ray	5.84	26.0	7.09	29.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
CL 2244−0221	0.33	22 47 12.6	−02 05 40	SL	$4.3^{+0.4}_{-0.4}$	$4.5^{+0.9}_{-0.9}$	$5.2^{+0.5}_{-0.5}$	$5.2^{+1.1}_{-1.1}$	Comerford & Natarajan (2007)	200/virial	0.3/0.7/0.7
RCS J2156+0123	0.335	15 47 34.2	+26 38 29.0	X-ray	$1.23^{+0.41}_{-0.3}$	$22.8^{+3.28}_{-2.88}$	$1.6^{+0.53}_{-0.39}$	$30.79^{+4.43}_{-3.89}$	Babyk et al. (2014)	200	0.27/0.73/0.73
SDSS J1531+3414	0.335	15 31 10.60	+34 14 25.0	SL	$2.4^{+10.4}_{-0.6}$	$35.1^{+20.9}_{-34.0}$	$3.0^{+13.0}_{-0.7}$	$43.9^{+26.1}_{-42.5}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
SDSS J1531+3414	0.335	15 31 10.60	+34 14 25.0	WL	$9.4^{+23.3}_{-6.0}$	$5.3^{+3.5}_{-2.3}$	$11.5^{+28.5}_{-7.4}$	$5.9^{+3.9}_{-2.6}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
SDSS J1531+3414	0.335	15 31 10.60	+34 14 25.0	WL+SL	$6.4^{+2.4}_{-1.2}$	$5.8^{+2.5}_{-2.1}$	$7.9^{+3.0}_{-1.5}$	$6.6^{+2.9}_{-2.4}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
SDSS J1531+3414	0.335	15 31 10.60	+34 14 25.0	WL	$6.8^{+1.2}_{-1.2}$	$6.4^{+1.6}_{-1.6}$	$8.2^{+1.4}_{-1.4}$	$7.2^{+1.9}_{-1.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1531+3414	0.335	15 31 10.60	+34 14 25.0	WL	$4.84^{+2.66}_{-1.68}$	$4.98^{+1.58}_{-1.25}$	$5.96^{+3.27}_{-2.07}$	$5.75^{+1.83}_{-1.44}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1531+3414	0.335	15 31 10.60	+34 14 25.0	WL+SL	$6.81^{+1.29}_{-0.95}$	$4.54^{+1.18}_{-1.05}$	$8.32^{+1.57}_{-1.16}$	$5.13^{+1.33}_{-1.19}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1621+0607	0.342	16 21 32.36	+06 07 19.0	WL	$4.4^{+1.0}_{-1.0}$	$7.1^{+2.3}_{-2.3}$	$5.4^{+1.2}_{-1.2}$	$8.2^{+2.8}_{-2.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1621+0607	0.342	16 21 32.36	+06 07 19.0	WL	$3.17^{+1.52}_{-1.12}$	$5.58^{+2.12}_{-1.68}$	$3.94^{+1.89}_{-1.39}$	$6.68^{+2.54}_{-2.01}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1621+0607	0.342	16 21 32.36	+06 07 19.0	WL+SL	$4.52^{+1.17}_{-0.85}$	$5.08^{+1.77}_{-1.44}$	$5.56^{+1.44}_{-1.04}$	$5.89^{+2.05}_{-1.67}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MACS J0947.2+7623	0.345	09 47 13.0	+76 23 14	X-ray	$5.41^{+1.86}_{-1.51}$	$10.69^{+8.41}_{-4.04}$	$6.54^{+2.2}_{-1.79}$	$12.15^{+10.04}_{-4.71}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
RXC J2248.7−4431	0.348	22 48 43.5	−44 31 44	WL	$2.6^{+1.5}_{-1.0}$	$33.1^{+9.6}_{-6.8}$	$3.3^{+1.9}_{-1.3}$	$40.7^{+11.8}_{-8.4}$	Gruen et al. (2013)	200	0.27/0.73/0.72
RXC J2248.7−4431	0.348	22 48 43.5	−44 31 44	WL	$7.1^{+2.6}_{-2.6}$	$12.6^{+4.3}_{-4.3}$	$8.6^{+3.1}_{-3.1}$	$14.1^{+5.1}_{-5.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RXC J2248.7−4431	0.348	22 48 43.5	−44 31 44	WL+SL	$3.2^{+0.9}_{-0.9}$	$11.6^{+1.2}_{-1.2}$	$4.0^{+1.1}_{-1.1}$	$14.0^{+1.2}_{-1.2}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MACS J1115.8+0129	0.352	11 15 52.0	+01 29 55	WL	$4.1^{+0.8}_{-0.8}$	$15.0^{+3.9}_{-3.9}$	$5.0^{+1.9}_{-1.9}$	$17.5^{+4.8}_{-4.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MACS J1115.8+0129	0.352	11 15 52.0	+01 29 55	X-ray	$2.23^{+0.53}_{-0.55}$	$23.59^{+4.17}_{-3.18}$	$2.81^{+0.67}_{-0.69}$	$29.42^{+5.2}_{-3.97}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J1115.8+0129	0.352	11 15 52.0	+01 29 55	WL+SL	$2.3^{+0.7}_{-0.7}$	$9.0^{+0.9}_{-0.9}$	$2.9^{+0.9}_{-0.9}$	$11.3^{+1.0}_{-1.0}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MACS J1931.8−2635	0.352	19 31 49.6	−26 34 34	WL	$5.9^{+3.3}_{-3.3}$	$12.3^{+7.7}_{-7.7}$	$7.1^{+3.9}_{-3.9}$	$14.0^{+9.3}_{-9.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MACS J1931.8−2635	0.352	19 31 49.6	−26 34 34	X-ray	$4.11^{+0.36}_{-0.24}$	$32.78^{+3.91}_{-4.19}$	$5.09^{+0.45}_{-0.3}$	$38.59^{+4.6}_{-4.93}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J1931.8−2635	0.352	19 31 49.6	−26 34 34	WL+SL	$3.2^{+0.9}_{-0.9}$	$6.9^{+0.5}_{-0.5}$	$3.9^{+1.1}_{-1.1}$	$8.3^{+0.6}_{-0.6}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MACS J1931.8−2635	0.352	19 31 49.6	−26 34 34	X-ray	$3.11^{+1.87}_{-1.88}$	$16.2^{+\infty}_{-8.6}$	$3.81^{+2.22}_{-2.25}$	$19.2^{+\infty}_{-10.5}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
RX J1532.9+3021	0.3615	15 32 53.8	+30 20 58	WL	$7.5^{+2.3}_{-2.3}$	$4.7^{+1.6}_{-1.6}$	$9.0^{+2.7}_{-2.7}$	$5.2^{+1.9}_{-1.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RX J1532.9+3021	0.3615	15 32 53.8	+30 20 58	X-ray	$2.77^{+2.28}_{-2.28}$	$19.0^{+675.0}_{-16.0}$	$3.4^{+2.7}_{-2.75}$	$23.0^{+1006.0}_{-19.0}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
SDSS J1152+3313	0.362	11 52 00.15	+33 13 42.1	WL	$12.5^{+4.0}_{-4.0}$	$1.3^{+0.6}_{-0.6}$	$14.9^{+4.7}_{-4.7}$	$1.4^{+0.7}_{-0.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1152+3313	0.362	11 52 00.15	+33 13 42.1	WL	$23.02^{+10.26}_{-20.29}$	$0.68^{+1.24}_{-0.41}$	$27.54^{+12.27}_{-24.27}$	$0.73^{+1.33}_{-0.44}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1152+3313	0.362	11 52 00.15	+33 13 42.1	WL+SL	$14.45^{+18.65}_{-6.14}$	$0.75^{+0.86}_{-0.44}$	$17.38^{+22.43}_{-7.38}$	$0.82^{+0.94}_{-0.48}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MACS J1532.9+3021	0.363	15 32 53.8	+30 20 58	WL+SL	$3.0^{+1.4}_{-1.4}$	$5.3^{+0.8}_{-0.8}$	$3.8^{+1.7}_{-1.7}$	$6.4^{+0.9}_{-0.9}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MACS J1532.9+3021	0.363	15 32 53.8	+30 20 58	X-ray	$4.71^{+1.32}_{-1.25}$	$8.46^{+5.96}_{-2.73}$	$5.69^{+1.56}_{-1.47}$	$9.67^{+7.19}_{-3.22}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
SDSS J0851+3331	0.37	08 51 38.86	+33 31 06.1	WL	$8.6^{+2.6}_{-2.6}$	$7.1^{+2.0}_{-2.0}$	$10.3^{+3.1}_{-3.1}$	$7.9^{+2.3}_{-2.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J0851+3331	0.37	08 51 38.86	+33 31 06.1	WL	$4.6^{+2.77}_{-1.66}$	$6.36^{+2.12}_{-1.7}$	$5.62^{+3.39}_{-2.03}$	$7.33^{+2.44}_{-1.96}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J0851+3331	0.37	08 51 38.86	+33 31 06.1	WL+SL	$7.8^{+2.6}_{-1.53}$	$5.59^{+1.61}_{-1.44}$	$9.44^{+3.15}_{-1.85}$	$6.24^{+1.8}_{-1.61}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MS 1512.4+3647	0.372	15 14 25.1	+36 36 30	X-ray	7.82	7.2	9.35	7.9	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
Abell 370	0.375	02 39 50.5	−01 35 08	WL	$5.83^{+0.91}_{-0.77}$	$31.14^{+3.92}_{-3.33}$	$7.0^{+1.09}_{-0.92}$	$35.01^{+4.41}_{-3.74}$	Umetsu et al. (2011a)	Virial	0.3/0.7/0.7
MACS J0011.7−1523	0.379	00 11 42.9	−15 23 22	X-ray	$4.01^{+0.23}_{-0.33}$	$48.34^{+3.82}_{-4.15}$	$4.94^{+0.28}_{-0.41}$	$56.76^{+4.49}_{-4.87}$	Babyk et al. (2014)	200	0.27/0.73/0.73
BCS J2352−5452	0.3838	23 51 38.0	−54 52 53	WL	$4.9^{+3.9}_{-2.2}$	$5.0^{+2.9}_{-2.3}$	$5.9^{+4.7}_{-2.6}$	$5.7^{+3.3}_{-2.6}$	Buckley-Geer et al. (2011)	200	0.3/0.7/0.7
BCS J2352−5452	0.3838	23 51 38.0	−54 52 53	WL+SL	$5.5^{+2.7}_{-1.6}$	$4.9^{+2.9}_{-2.2}$	$6.6^{+3.2}_{-1.9}$	$5.6^{+3.3}_{-2.5}$	Buckley-Geer et al. (2011)	200	0.3/0.7/0.7
MACS J1720.3+3536	0.391	17 20 16.8	+35 36 26	WL	$6.1^{+1.5}_{-1.5}$	$10.1^{+2.6}_{-2.6}$	$7.3^{+1.8}_{-1.8}$	$11.4^{+3.1}_{-3.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MACS J1720.3+3536	0.391	17 20 16.8	+35 36 26	X-ray	$5.25^{+0.61}_{-0.36}$	$40.7^{+5.17}_{-4.92}$	$6.4^{+0.74}_{-0.44}$	$46.72^{+5.93}_{-5.65}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J1720.3+3536	0.391	17 20 16.8	+35 36 26	WL+SL	$4.3^{+1.4}_{-1.4}$	$7.5^{+0.8}_{-0.8}$	$5.2^{+1.7}_{-1.7}$	$8.8^{+0.8}_{-0.8}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_\odot$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_\odot$)	Ref.	δ	$\Omega_{\rm m}/\Omega_\Lambda$/h
MACS J1720.3+3536	0.391	17 20 16.8	+35 36 26	X-ray	$4.37^{+1.21}_{-0.88}$	$9.01^{+4.63}_{-3.3}$	$5.26^{+1.42}_{-1.04}$	$10.31^{+5.55}_{-3.87}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
ZwCl 0024.0+1652	0.395	00 26 35.7	+17 09 46	WL	$7.41^{+1.89}_{-1.41}$	$17.74^{+3.0}_{-2.59}$	$8.82^{+2.25}_{-1.68}$	$19.66^{+3.32}_{-2.87}$	Umetsu et al. (2011a)	Virial	0.3/0.7/0.7
ZwCl 0024.0+1652	0.395	00 26 35.7	+17 09 46	WL+SL	$22.0^{+9.0}_{-5.0}$	$5.7^{+1.1}_{-1.0}$	$26.0^{+10.0}_{-6.0}$	$6.1^{+1.2}_{-1.1}$	Kneib et al. (2003)	200	0.3/0.7/0.65
SDSS J0915+3826	0.397	09 15 39.00	+38 26 58.5	WL	$13.2^{+3.8}_{-3.8}$	$1.9^{+0.7}_{-0.7}$	$15.6^{+4.4}_{-4.4}$	$2.1^{+0.8}_{-0.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J0915+3826	0.397	09 15 39.00	+38 26 58.5	WL	$33.62^{+0.0}_{-14.49}$	$0.86^{+0.28}_{-0.26}$	$39.81^{+0.0}_{-17.16}$	$0.91^{+0.3}_{-0.28}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J0915+3826	0.397	09 15 39.00	+38 26 58.5	WL+SL	$22.65^{+10.85}_{-9.15}$	$0.75^{+0.47}_{-0.25}$	$26.92^{+12.9}_{-10.88}$	$0.8^{+0.5}_{-0.27}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MACS J0429.6−0253	0.399	04 29 36.0	−02 53 08	WL	$5.8^{+1.4}_{-1.4}$	$7.9^{+2.4}_{-2.4}$	$6.9^{+1.6}_{-1.6}$	$8.9^{+2.8}_{-2.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MACS J0429.6−0253	0.399	04 29 36.0	−02 53 08	X-ray	$3.36^{+1.76}_{-1.65}$	$18.5^{+1.82}_{-1.63}$	$4.14^{+2.17}_{-2.03}$	$21.97^{+2.16}_{-1.94}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J0429.6−0253	0.399	04 29 36.0	−02 53 08	WL+SL	$3.3^{+1.3}_{-1.3}$	$8.0^{+1.4}_{-1.4}$	$4.0^{+1.6}_{-1.6}$	$9.6^{+1.4}_{-1.4}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MACS J0429.6−0253	0.399	04 29 36.0	−02 53 08	X-ray	$7.64^{+1.57}_{-1.1}$	$3.66^{+1.11}_{-0.97}$	$9.09^{+1.84}_{-1.29}$	$4.05^{+1.27}_{-1.1}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
MACS J0159.8−0849	0.405	01 59 49.4	−08 49 59	X-ray	$5.35^{+0.82}_{-0.72}$	$44.0^{+4.84}_{-4.44}$	$6.5^{+1.0}_{-0.87}$	$50.34^{+5.54}_{-5.08}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J0159.8−0849	0.405	01 59 49.4	−08 49 59	X-ray	$4.93^{+1.01}_{-1.07}$	$11.59^{+6.29}_{-3.3}$	$5.9^{+1.18}_{-1.25}$	$13.13^{+7.46}_{-3.84}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
SDSS J1343+4155	0.418	13 43 32.85	+41 55 03.4	WL	$4.5^{+1.3}_{-1.3}$	$4.6^{+1.6}_{-1.6}$	$5.4^{+1.5}_{-1.5}$	$5.3^{+1.9}_{-1.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1343+4155	0.418	13 43 32.85	+41 55 03.4	WL	$3.76^{+4.66}_{-1.92}$	$3.35^{+1.78}_{-1.26}$	$4.57^{+5.66}_{-2.33}$	$3.89^{+2.07}_{-1.46}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1343+4155	0.418	13 43 32.85	+41 55 03.4	WL+SL	$4.18^{+1.39}_{-0.82}$	$3.26^{+1.34}_{-1.08}$	$5.07^{+1.69}_{-1.0}$	$3.76^{+1.55}_{-1.25}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MACS J0416.1−2403	0.42	04 16 09.9	−24 03 58	WL	$8.0^{+1.7}_{-1.7}$	$8.6^{+1.4}_{-1.4}$	$9.5^{+2.0}_{-2.0}$	$9.5^{+1.7}_{-1.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MS 0302.7+1658	0.426	03 05 31.7	+17 10 03	X-ray	7.39	8.5	8.75	9.4	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
SDSS J1038+4849	0.43	10 38 42.90	+48 49 18.7	WL	$14.8^{+3.5}_{-3.5}$	$1.7^{+0.4}_{-0.4}$	$17.3^{+4.1}_{-4.1}$	$1.8^{+0.4}_{-0.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1038+4849	0.43	10 38 42.90	+48 49 18.7	WL	$17.65^{+15.99}_{-11.46}$	$0.8^{+0.66}_{-0.36}$	$20.89^{+18.92}_{-13.56}$	$0.86^{+0.71}_{-0.39}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1038+4849	0.43	10 38 42.90	+48 49 18.7	WL+SL	$33.83^{+0.0}_{-18.36}$	$0.7^{+0.49}_{-0.11}$	$39.81^{+0.0}_{-21.61}$	$0.74^{+0.52}_{-0.12}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1226+2152	0.43	12 26 51.70	+21 52 26.0	WL	$6.2^{+5.8}_{-5.8}$	$1.9^{+2.1}_{-2.1}$	$7.4^{+6.8}_{-6.8}$	$2.1^{+2.5}_{-2.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1226+2152	0.43	12 26 51.70	+21 52 26.0	WL	$5.7^{+27.48}_{-5.69}$	$0.71^{+66.61}_{-0.62}$	$6.84^{+32.97}_{-6.83}$	$0.8^{+75.05}_{-0.7}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1226+2152	0.43	12 26 51.70	+21 52 26.0	WL+SL	$33.83^{+0.0}_{-28.15}$	$0.37^{+1.2}_{-0.24}$	$39.81^{+0.0}_{-33.13}$	$0.39^{+1.27}_{-0.25}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1226+2149	0.435	12 26 51.11	+21 49 52.3	WL	$4.9^{+1.5}_{-1.5}$	$10.0^{+3.4}_{-3.4}$	$5.8^{+1.7}_{-1.7}$	$11.4^{+4.1}_{-4.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1226+2149	0.435	12 26 51.11	+21 49 52.3	WL	$4.35^{+2.08}_{-1.44}$	$7.69^{+3.17}_{-2.3}$	$5.25^{+2.51}_{-1.74}$	$8.81^{+3.63}_{-2.64}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1226+2149	0.435	12 26 51.11	+21 49 52.3	WL+SL	$4.61^{+1.4}_{-0.95}$	$7.55^{+2.88}_{-2.14}$	$5.56^{+1.69}_{-1.14}$	$8.61^{+3.28}_{-2.44}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MACS J1206.2−0847	0.439	12 06 12.2	−08 48 01	SL	$3.7^{+0.2}_{-0.2}$	–	$4.4^{+0.2}_{-0.2}$	–	Eichner et al. (2013)	200	0.272/0.728/0.702
MACS J1206.2−0847	0.439	12 06 12.2	−08 48 01	LOSVD	$7.3^{+2.4}_{-2.4}$	$13.7^{+1.8}_{-1.8}$	$8.6^{+2.8}_{-2.8}$	$15.2^{+2.3}_{-2.3}$	Biviano et al. (2013)	200	0.3/0.7/0.7
MACS J1206.2−0847	0.439	12 06 12.2	−08 48 01	CM	$4.4^{+3.0}_{-3.0}$	$16.3^{+5.8}_{-5.8}$	$5.3^{+3.5}_{-3.5}$	$18.6^{+7.5}_{-7.5}$	Biviano et al. (2013)	200	0.3/0.7/0.7
MACS J1206.2−0847	0.439	12 06 12.2	−08 48 01	WL	$6.3^{+1.8}_{-1.8}$	$13.3^{+3.3}_{-3.3}$	$7.5^{+2.1}_{-2.1}$	$14.9^{+3.9}_{-3.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MACS J1206.2−0847	0.439	12 06 12.2	−08 48 01	WL+SL	$4.3^{+1.5}_{-1.5}$	$8.6^{+1.1}_{-1.1}$	$5.2^{+1.7}_{-1.7}$	$10.0^{+1.1}_{-1.1}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
SDSS J1329+2243	0.443	13 29 34.49	+22 43 16.2	WL	$5.0^{+0.9}_{-0.9}$	$6.7^{+1.3}_{-1.3}$	$6.0^{+1.0}_{-1.0}$	$7.6^{+1.6}_{-1.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1329+2243	0.443	13 29 34.49	+22 43 16.2	WL	$8.31^{+6.13}_{-3.01}$	$4.44^{+1.21}_{-1.03}$	$9.89^{+7.29}_{-3.58}$	$4.9^{+1.34}_{-1.14}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1329+2243	0.443	13 29 34.49	+22 43 16.2	WL+SL	$4.84^{+0.98}_{-0.67}$	$4.95^{+1.22}_{-1.07}$	$5.82^{+1.18}_{-0.81}$	$5.62^{+1.38}_{-1.21}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J0957+0509	0.448	09 57 39.19	+05 09 31.9	WL	$6.9^{+2.6}_{-2.6}$	$2.0^{+1.1}_{-1.1}$	$8.2^{+3.0}_{-3.0}$	$2.2^{+1.3}_{-1.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J0957+0509	0.448	09 57 39.19	+05 09 31.9	WL	$33.94^{+0.0}_{-23.57}$	$0.92^{+0.57}_{-0.29}$	$39.81^{+0.0}_{-27.65}$	$0.97^{+0.6}_{-0.31}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J0957+0509	0.448	09 57 39.19	+05 09 31.9	WL+SL	$7.57^{+3.75}_{-1.83}$	$1.16^{+0.76}_{-0.55}$	$9.02^{+4.47}_{-2.18}$	$1.29^{+0.85}_{-0.61}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MACS J0329.7−0212	0.45	03 29 41.5	−02 11 46	WL	$9.0^{+2.3}_{-2.3}$	$8.7^{+1.6}_{-1.6}$	$10.6^{+2.7}_{-2.7}$	$9.5^{+1.9}_{-1.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MACS J0329.7−0212	0.45	03 29 41.5	−02 11 46	WL+SL	$3.8^{+1.6}_{-1.6}$	$7.3^{+1.0}_{-1.0}$	$4.7^{+1.9}_{-1.9}$	$8.6^{+1.1}_{-1.1}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MACS J0329.7−0212	0.45	03 29 41.5	−02 11 46	X-ray	$4.74^{+0.75}_{-0.78}$	$6.62^{+2.57}_{-1.56}$	$5.62^{+0.88}_{-0.91}$	$7.48^{+3.03}_{-1.81}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
SDSS J1138+2754	0.451	11 38 08.95	+27 54 30.7	WL	$3.6^{+0.3}_{-0.3}$	$12.7^{+0.7}_{-0.7}$	$4.3^{+0.4}_{-0.4}$	$14.7^{+0.9}_{-0.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1138+2754	0.451	11 38 08.95	+27 54 30.7	WL	$2.92^{+1.25}_{-0.9}$	$9.49^{+2.18}_{-1.95}$	$3.55^{+1.52}_{-1.09}$	$11.22^{+2.58}_{-2.31}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1138+2754	0.451	11 38 08.95	+27 54 30.7	WL+SL	$3.7^{+0.5}_{-0.44}$	$8.94^{+1.81}_{-1.59}$	$4.47^{+0.6}_{-0.53}$	$10.35^{+2.09}_{-1.84}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
RX J1347.5−1145	0.451	13 47 30.6	−11 45 10	WL	$4.5^{+1.2}_{-1.2}$	$27.9^{+7.1}_{-7.1}$	$5.4^{+1.4}_{-1.4}$	$31.8^{+8.7}_{-8.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RX J1347.5−1145	0.451	13 47 30.6	−11 45 10	WL	$7.71^{+2.67}_{-1.84}$	$19.33^{+3.6}_{-3.17}$	$9.08^{+3.14}_{-2.17}$	$21.26^{+3.96}_{-3.49}$	Umetsu et al. (2011a)	Virial	0.3/0.7/0.7
RX J1347.5−1145	0.451	13 47 30.6	−11 45 10	WL+SL	$3.9^{+1.5}_{-1.5}$	$11.6^{+1.9}_{-1.9}$	$4.7^{+1.8}_{-1.8}$	$13.5^{+1.9}_{-1.9}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
RX J1347.5−1145	0.451	13 47 30.6	−11 45 10	WL	$15.0^{+64.0}_{-10.0}$	$27.0^{+26.0}_{-14.0}$	$18.0^{+74.0}_{-12.0}$	$29.0^{+31.0}_{-15.0}$	Kling et al. (2005)	200	0.3/0.7/0.5
RX J1347.5−1145	0.451	13 47 30.6	−11 45 10	X-ray	$4.79^{+0.68}_{-0.37}$	$32.0^{+6.1}_{-8.2}$	$5.68^{+0.79}_{-0.43}$	$36.1^{+7.1}_{-9.5}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
RX J1347.5−1145	0.451	13 47 30.6	−11 45 10	X-ray	$4.37^{+1.39}_{-1.24}$	$33.0^{+48.0}_{-18.0}$	$5.2^{+1.62}_{-1.45}$	$37.0^{+57.0}_{-21.0}$	Voigt & Fabian (2006)	200/2E4	0.3/0.7/0.7
RX J1347.5−1145	0.451	13 47 30.6	−11 45 10	X-ray	$6.34^{+1.61}_{-1.35}$	$23.7^{+14.2}_{-9.3}$	$7.49^{+1.87}_{-1.57}$	$26.3^{+16.3}_{-10.5}$	Allen et al. (2003)	200	0.3/0.7/0.5
3C 295	0.461	14 11 20.5	+52 12 10	X-ray	$7.79^{+1.04}_{-0.9}$	$3.57^{+0.81}_{-0.65}$	$9.15^{+1.2}_{-0.9}$	$3.93^{+0.92}_{-0.73}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
3C 295	0.461	14 11 20.5	+52 12 10	X-ray	$7.9^{+1.71}_{-1.72}$	$3.76^{+1.59}_{-1.02}$	$9.29^{+2.01}_{-2.02}$	$4.14^{+1.75}_{-1.12}$	Allen et al. (2003)	200	0.3/0.7/0.5
MACS J1621.6+3810	0.461	16 21 36.0	+38 10 00	X-ray	$5.97^{+2.95}_{-1.94}$	$7.1^{+5.33}_{-2.9}$	$7.05^{+3.42}_{-2.26}$	$7.91^{+6.25}_{-3.31}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
SDSS J1446+3032	0.464	14 46 34.02	+30 32 58.2	SL	$9.8^{+23.7}_{-6.0}$	$4.8^{+12.1}_{-2.5}$	$11.7^{+28.3}_{-7.2}$	$5.3^{+13.4}_{-2.8}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
SDSS J1446+3032	0.464	14 46 34.02	+30 32 58.2	WL	$7.6^{+9.5}_{-3.4}$	$7.5^{+2.6}_{-2.3}$	$9.1^{+11.4}_{-4.1}$	$8.3^{+2.9}_{-2.5}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
SDSS J1446+3032	0.464	14 46 34.02	+30 32 58.2	WL+SL	$6.9^{+3.2}_{-2.6}$	$7.4^{+2.7}_{-2.0}$	$8.3^{+3.9}_{-3.1}$	$8.3^{+3.0}_{-2.2}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
SDSS J1446+3032	0.464	14 46 34.02	+30 32 58.2	WL	$10.0^{+3.9}_{-3.9}$	$6.3^{+1.6}_{-1.6}$	$11.7^{+4.5}_{-4.5}$	$6.9^{+1.9}_{-1.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1446+3032	0.464	14 46 34.02	+30 32 58.2	WL	$10.65^{+7.65}_{-3.7}$	$3.73^{+1.07}_{-0.9}$	$12.59^{+9.04}_{-4.37}$	$4.07^{+1.17}_{-0.98}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1446+3032	0.464	14 46 34.02	+30 32 58.2	WL+SL	$10.16^{+7.09}_{-3.21}$	$3.77^{+1.09}_{-0.91}$	$12.02^{+8.39}_{-3.8}$	$4.12^{+1.19}_{-0.99}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1115+5319	0.466	11 15 14.85	+53 19 54.6	WL	$4.6^{+1.7}_{-1.7}$	$12.4^{+3.6}_{-3.6}$	$5.5^{+2.0}_{-2.0}$	$14.1^{+4.4}_{-4.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1115+5319	0.466	11 15 14.85	+53 19 54.6	WL	$2.17^{+1.0}_{-0.73}$	$9.52^{+2.89}_{-2.38}$	$2.66^{+1.23}_{-0.9}$	$11.61^{+3.52}_{-2.9}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_{\odot}$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_{\odot}$)	Ref.	δ	Ω_m/Ω_Λ/h
SDSS J1115+5319	0.466	11 15 14.85	+53 19 54.6	WL+SL	$4.38^{+1.26}_{-0.82}$	$9.29^{+2.68}_{-2.4}$	$5.25^{+1.51}_{-0.98}$	$10.59^{+3.05}_{-2.74}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
RCS2 J1055+5548	0.466	10 55 04.59	+55 48 23.3	WL	$6.4^{+1.1}_{-1.1}$	$5.9^{+1.4}_{-1.4}$	$7.5^{+1.3}_{-1.3}$	$6.6^{+1.6}_{-1.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS2 J1055+5548	0.466	10 55 04.59	+55 48 23.3	WL	$5.16^{+3.4}_{-1.86}$	$4.55^{+1.52}_{-1.18}$	$6.17^{+4.07}_{-2.23}$	$5.13^{+1.71}_{-1.33}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
RCS2 J1055+5548	0.466	10 55 04.59	+55 48 23.3	WL+SL	$6.22^{+1.18}_{-0.92}$	$4.29^{+1.17}_{-0.96}$	$7.41^{+1.4}_{-1.1}$	$4.79^{+1.31}_{-1.07}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1456+5702	0.484	14 56 00.78	+57 02 20.3	WL	$15.6^{+2.8}_{-2.8}$	$4.3^{+0.7}_{-0.7}$	$18.1^{+3.2}_{-3.2}$	$4.6^{+0.8}_{-0.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1456+5702	0.484	14 56 00.78	+57 02 20.3	WL	$2.4^{+1.36}_{-0.95}$	$5.56^{+1.69}_{-1.39}$	$2.92^{+1.65}_{-1.16}$	$6.68^{+2.03}_{-1.67}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1456+5702	0.484	14 56 00.78	+57 02 20.3	WL+SL	$19.33^{+12.38}_{-5.33}$	$2.51^{+0.8}_{-0.71}$	$22.65^{+14.51}_{-6.24}$	$2.69^{+0.86}_{-0.76}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1632+3500	0.49	16 32 10.26	+35 00 29.7	WL	$10.9^{+4.4}_{-4.4}$	$5.0^{+1.4}_{-1.4}$	$12.7^{+5.1}_{-5.1}$	$5.4^{+1.6}_{-1.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1632+3500	0.49	16 32 10.26	+35 00 29.7	WL	$5.5^{+6.12}_{-2.58}$	$3.77^{+1.55}_{-1.25}$	$6.53^{+7.27}_{-3.06}$	$4.22^{+1.74}_{-1.4}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1632+3500	0.49	16 32 10.26	+35 00 29.7	WL+SL	$7.2^{+5.03}_{-1.73}$	$3.6^{+1.43}_{-1.14}$	$8.51^{+5.94}_{-2.05}$	$3.98^{+1.58}_{-1.26}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MACS J1311.0−0311	0.494	13 11 01.9	−03 10 36	X-ray	$5.01^{+0.73}_{-0.35}$	$55.11^{+4.84}_{-5.58}$	$5.99^{+0.87}_{-0.42}$	$62.6^{+5.5}_{-6.34}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J1311.0−0311	0.494	13 11 01.9	−03 10 36	WL+SL	$4.4^{+1.0}_{-1.0}$	$4.6^{+0.3}_{-0.3}$	$5.3^{+1.1}_{-1.1}$	$5.3^{+0.4}_{-0.4}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MACS J1311.0−0311	0.494	13 11 01.9	−03 10 36	X-ray	$4.42^{+1.39}_{-1.05}$	$6.22^{+3.71}_{-2.15}$	$5.22^{+1.6}_{-1.22}$	$7.02^{+4.38}_{-2.49}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
WARP J0030.5+2618	0.5	00 30 33.2	+26 18 19	WL	$2.0^{+1.8}_{-1.2}$	$7.2^{+3.6}_{-2.9}$	$2.4^{+2.2}_{-1.4}$	$8.7^{+4.3}_{-3.5}$	Israel et al. (2010)	200	0.3/0.7/0.72
SDSS J1152+0930	0.517	11 52 47.38	+09 30 14.7	WL	$3.1^{+1.6}_{-1.6}$	$7.0^{+2.6}_{-2.6}$	$3.7^{+1.9}_{-1.9}$	$8.1^{+3.3}_{-3.3}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1152+0930	0.517	11 52 47.38	+09 30 14.7	WL	$1.34^{+1.07}_{-0.7}$	$5.64^{+2.8}_{-2.0}$	$1.66^{+1.33}_{-0.87}$	$7.24^{+3.59}_{-2.57}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1152+0930	0.517	11 52 47.38	+09 30 14.7	WL+SL	$2.96^{+0.77}_{-0.55}$	$4.92^{+2.19}_{-1.67}$	$3.55^{+0.92}_{-0.66}$	$5.75^{+2.56}_{-1.95}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MACS J1423.8+2404	0.543	14 23 47.6	+24 04 40	X-ray	$3.33^{+0.65}_{-0.63}$	$48.21^{+4.72}_{-4.71}$	$3.98^{+0.78}_{-0.75}$	$55.97^{+5.48}_{-5.47}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J1423.8+2404	0.543	14 23 47.6	+24 04 40	WL+SL	$4.7^{+1.2}_{-1.2}$	$5.7^{+1.0}_{-1.0}$	$5.7^{+2.8}_{-2.8}$	$6.5^{+1.1}_{-1.1}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MACS J1423.8+2404	0.543	14 23 47.6	+24 04 40	X-ray	$7.69^{+0.7}_{-0.79}$	$5.28^{+1.13}_{-0.76}$	$8.92^{+0.81}_{-0.91}$	$5.77^{+1.27}_{-0.84}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
MACS J1149.5+2223	0.544	11 49 35.1	+22 24 11	WL	$2.7^{+0.4}_{-0.4}$	$26.6^{+4.7}_{-4.7}$	$3.2^{+0.5}_{-0.5}$	$31.0^{+5.8}_{-5.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MACS J0717.5+3745	0.546	07 17 30.9	+37 45 30	WL	$5.2^{+1.2}_{-1.2}$	$28.4^{+4.1}_{-4.1}$	$6.1^{+1.4}_{-1.4}$	$31.7^{+5.0}_{-5.0}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MS 0015.9+1609	0.546	00 18 33.8	+16 26 17	X-ray	4.37	93.3	5.11	105.0	Molikawa et al. (1999)	Virial	0.3/0.7/0.5
MS 0451.6−0305	0.55	04 54 11.1	−03 00 54	SL	$5.5^{+0.3}_{-0.3}$	$18.0^{+2.0}_{-2.0}$	$6.4^{+0.3}_{-0.3}$	$20.0^{+2.0}_{-2.0}$	Comerford & Natarajan (2007)	200/virial	0.3/0.7/0.7
SDSS J1209+2640	0.561	12 09 23.68	+26 40 46.7	WL	$6.7^{+1.3}_{-1.3}$	$7.7^{+2.1}_{-2.1}$	$7.8^{+1.5}_{-1.5}$	$8.5^{+2.4}_{-2.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1209+2640	0.561	12 09 23.68	+26 40 46.7	WL	$4.89^{+3.14}_{-1.91}$	$6.19^{+2.25}_{-1.81}$	$5.75^{+3.69}_{-2.25}$	$6.92^{+2.52}_{-2.02}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1209+2640	0.561	12 09 23.68	+26 40 46.7	WL+SL	$6.71^{+1.36}_{-1.07}$	$5.48^{+1.66}_{-1.32}$	$7.85^{+1.59}_{-1.25}$	$6.03^{+1.83}_{-1.45}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
RX J0848.7+4456	0.57	08 48 47.2	+44 56 17	X-ray	$0.82^{+0.05}_{-0.01}$	$3.32^{+0.73}_{-0.77}$	$1.02^{+0.06}_{-0.01}$	$4.42^{+0.97}_{-1.03}$	Babyk et al. (2014)	200	0.27/0.73/0.73
SDSS J1029+2623	0.584	10 29 12.48	+26 23 32.0	WL+SL	$22.31^{+12.24}_{-6.51}$	$2.08^{+0.54}_{-0.47}$	$25.7^{+14.1}_{-7.5}$	$2.21^{+0.57}_{-0.5}$	Oguri et al. (2013)	Virial	0.275/0.725/0.702
SDSS J1029+2623	0.584	10 29 12.48	+26 23 32.0	WL	$9.2^{+4.3}_{-4.3}$	$2.9^{+0.7}_{-0.7}$	$10.6^{+4.9}_{-4.9}$	$3.1^{+0.8}_{-0.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1029+2623	0.584	10 29 12.48	+26 23 32.0	WL	$9.89^{+12.51}_{-4.32}$	$1.85^{+0.68}_{-0.56}$	$11.48^{+14.52}_{-5.02}$	$2.0^{+0.73}_{-0.6}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1029+2623	0.584	10 29 12.48	+26 23 32.0	WL+SL	$9.56^{+8.24}_{-3.59}$	$1.86^{+0.62}_{-0.52}$	$11.09^{+9.56}_{-4.17}$	$2.02^{+0.67}_{-0.57}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1315+5439	0.588	13 15 09.30	+54 37 51.8	WL	$12.3^{+4.5}_{-4.5}$	$5.3^{+1.4}_{-1.4}$	$14.1^{+5.1}_{-5.1}$	$5.7^{+1.6}_{-1.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1315+5439	0.588	13 15 09.30	+54 37 51.8	WL	$8.12^{+13.74}_{-3.96}$	$4.06^{+1.67}_{-1.34}$	$9.44^{+15.97}_{-4.6}$	$4.42^{+1.82}_{-1.46}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1315+5439	0.588	13 15 09.30	+54 37 51.8	WL+SL	$8.32^{+12.34}_{-2.43}$	$4.01^{+1.52}_{-1.27}$	$9.66^{+14.33}_{-2.82}$	$4.37^{+1.66}_{-1.38}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
MACS J2129.4−0741	0.589	21 29 26.2	−07 41 26	X-ray	$1.7^{+0.38}_{-0.41}$	$96.66^{+10.26}_{-10.15}$	$2.05^{+0.46}_{-0.49}$	$117.61^{+12.48}_{-12.35}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MACS J0647.7+7015	0.59	06 47 50.5	+70 14 55	WL	$7.3^{+2.6}_{-2.6}$	$11.4^{+3.0}_{-3.0}$	$8.4^{+3.0}_{-3.0}$	$12.5^{+3.5}_{-3.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MACS J0647.7+7015	0.59	06 47 50.5	+70 14 55	X-ray	$1.0^{+0.12}_{-0.11}$	$89.51^{+10.14}_{-9.28}$	$1.23^{+0.15}_{-0.14}$	$115.37^{+13.07}_{-11.96}$	Babyk et al. (2014)	200	0.27/0.73/0.73
SDSS J1050+0017	0.6	10 50 39.90	+00 17 07.1	WL	$10.1^{+4.3}_{-4.3}$	$7.7^{+1.9}_{-1.9}$	$11.6^{+4.9}_{-4.9}$	$8.3^{+2.2}_{-2.2}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1050+0017	0.6	10 50 39.90	+00 17 07.1	WL	$6.22^{+4.59}_{-2.29}$	$6.22^{+1.79}_{-1.55}$	$7.24^{+5.34}_{-2.67}$	$6.84^{+1.97}_{-1.71}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1050+0017	0.6	10 50 39.90	+00 17 07.1	WL+SL	$6.15^{+4.17}_{-1.8}$	$6.21^{+1.79}_{-1.5}$	$7.16^{+4.86}_{-2.09}$	$6.84^{+1.97}_{-1.65}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1420+3955	0.607	14 20 40.33	+39 55 09.8	WL	$4.3^{+1.1}_{-1.1}$	$8.9^{+2.7}_{-2.7}$	$5.0^{+1.3}_{-1.3}$	$10.0^{+3.2}_{-3.2}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1420+3955	0.607	14 20 40.33	+39 55 09.8	WL	$8.24^{+5.44}_{-2.86}$	$6.36^{+2.02}_{-1.65}$	$9.55^{+6.3}_{-3.31}$	$6.92^{+2.2}_{-1.79}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1420+3955	0.607	14 20 40.33	+39 55 09.8	WL+SL	$3.9^{+1.13}_{-0.84}$	$6.73^{+2.24}_{-1.8}$	$4.57^{+1.32}_{-0.98}$	$7.59^{+2.53}_{-2.03}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
3C 220.1	0.62	09 32 39.6	+79 06 32	SL	$4.3^{+0.2}_{-0.2}$	$3.1^{+0.3}_{-0.3}$	$5.0^{+0.2}_{-0.2}$	$3.5^{+0.3}_{-0.3}$	Comerford & Natarajan (2007)	200/virial	0.3/0.7/0.7
SDSS J2111−0114	0.638	21 11 19.34	−01 14 23.5	SL	$13.9^{+20.9}_{-8.8}$	$5.1^{+12.1}_{-2.5}$	$16.0^{+24.0}_{-10.1}$	$5.5^{+13.0}_{-2.7}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
SDSS J2111−0114	0.638	21 11 19.34	−01 14 23.5	WL	$12.2^{+22.4}_{-8.2}$	$8.5^{+3.8}_{-3.0}$	$14.1^{+25.9}_{-9.5}$	$9.2^{+4.1}_{-3.2}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
SDSS J2111−0114	0.638	21 11 19.34	−01 14 23.5	WL+SL	$12.2^{+22.4}_{-8.0}$	$8.5^{+3.8}_{-3.0}$	$14.1^{+25.9}_{-9.3}$	$9.2^{+4.1}_{-3.2}$	Oguri et al. (2009)	Virial	0.26/0.74/0.72
SDSS J2111−0114	0.638	21 11 19.34	−01 14 23.5	WL	$5.1^{+3.8}_{-3.8}$	$5.7^{+2.7}_{-2.7}$	$5.9^{+4.3}_{-4.3}$	$6.3^{+3.2}_{-3.2}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J2111−0114	0.638	21 11 19.34	−01 14 23.5	WL	$1.59^{+1.4}_{-0.84}$	$4.92^{+2.11}_{-1.75}$	$1.91^{+1.68}_{-1.01}$	$6.03^{+2.58}_{-2.14}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J2111−0114	0.638	21 11 19.34	−01 14 23.5	WL+SL	$4.11^{+2.71}_{-1.39}$	$4.69^{+2.17}_{-1.73}$	$4.79^{+3.16}_{-1.62}$	$5.25^{+2.43}_{-1.94}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
RCS J1419.2+5326	0.64	14 19 12.0	+53 26 00	X-ray	$6.24^{+0.73}_{-0.71}$	$12.91^{+1.64}_{-1.72}$	$7.25^{+0.85}_{-0.82}$	$14.25^{+1.81}_{-1.9}$	Babyk et al. (2014)	200	0.27/0.73/0.73
SDSS J1110+6459	0.659	11 10 17.70	+64 59 47.8	WL	$12.2^{+4.9}_{-4.9}$	$4.4^{+1.9}_{-1.9}$	$13.9^{+5.5}_{-5.5}$	$4.7^{+2.1}_{-2.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1110+6459	0.659	11 10 17.70	+64 59 47.8	WL	$31.55^{+3.45}_{-24.16}$	$1.97^{+2.05}_{-0.64}$	$35.89^{+3.92}_{-27.48}$	$2.07^{+2.15}_{-0.67}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1110+6459	0.659	11 10 17.70	+64 59 47.8	WL+SL	$19.61^{+15.26}_{-13.75}$	$2.13^{+2.27}_{-0.9}$	$22.39^{+17.42}_{-15.7}$	$2.26^{+2.41}_{-0.96}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1004+4112	0.68	10 04 34.18	+41 12 43.5	WL	$8.5^{+4.4}_{-4.4}$	$2.6^{+1.9}_{-1.9}$	$9.7^{+4.9}_{-4.9}$	$2.8^{+2.1}_{-2.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
SDSS J1004+4112	0.68	10 04 34.18	+41 12 43.5	WL	$3.81^{+26.08}_{-3.22}$	$2.52^{+3.88}_{-1.72}$	$4.42^{+30.26}_{-3.74}$	$2.82^{+4.34}_{-1.92}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1004+4112	0.68	10 04 34.18	+41 12 43.5	WL+SL	$7.24^{+10.33}_{-2.72}$	$2.03^{+2.21}_{-1.31}$	$8.32^{+11.87}_{-3.13}$	$2.21^{+2.41}_{-1.43}$	Oguri et al. (2012)	Virial	0.275/0.725/0.702
SDSS J1004+4112	0.68	10 04 34.18	+41 12 43.5	SL	5.0	3.87	6.0	4.25	Williams & Saha (2004)	200	0.3/0.7/0.7
MACS J0744.9+3927	0.686	07 44 52.5	+39 27 27	WL	$7.1^{+2.6}_{-2.6}$	$12.9^{+3.3}_{-3.3}$	$8.1^{+2.9}_{-2.9}$	$14.0^{+3.8}_{-3.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MACS J0744.9+3927	0.686	07 44 52.5	+39 27 27	X-ray	$1.01^{+0.37}_{-0.16}$	$106.48^{+8.82}_{-6.18}$	$1.22^{+0.45}_{-0.19}$	$134.02^{+11.1}_{-7.78}$	Babyk et al. (2014)	200	0.27/0.73/0.73

Table A1 – *continued*

Cluster	z	RA	Dec.	Method	c_{200}	M_{200} (10^{14} M$_\odot$)	$c_{\rm vir}$	$M_{\rm vir}$ (10^{14} M$_\odot$)	Ref.	δ	$\Omega_{\rm m}/\Omega_\Lambda$/h
MACS J0744.9+3927	0.686	07 44 52.5	+39 27 27	WL+SL	$4.1^{+1.0}_{-1.0}$	$7.0^{+0.4}_{-0.4}$	$4.8^{+1.1}_{-1.1}$	$7.9^{+0.4}_{-0.4}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
MACS J0744.9+3927	0.686	07 44 52.5	+39 27 27	X-ray	$4.32^{+1.43}_{-1.06}$	$8.83^{+4.84}_{-3.16}$	$4.95^{+1.61}_{-1.2}$	$9.78^{+5.6}_{-3.58}$	Schmidt & Allen (2007)	Virial	0.3/0.7/0.7
RX J1221.4+4918	0.7	12 21 24.5	+49 18 13	X-ray	$2.39^{+0.37}_{-0.35}$	$46.64^{+5.22}_{-3.49}$	$2.81^{+0.44}_{-0.41}$	$54.23^{+6.07}_{-4.06}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RX J1113.1−2615	0.72	11 13 05.2	−26 15 26	X-ray	$3.28^{+0.73}_{-0.71}$	$5.3^{+0.73}_{-0.48}$	$3.81^{+0.85}_{-0.82}$	$6.02^{+0.83}_{-0.55}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RCS J1107.3−0523	0.735	11 07 22.8	−05 23 49	X-ray	$3.15^{+0.56}_{-0.45}$	$5.27^{+0.74}_{-0.45}$	$3.66^{+0.65}_{-0.52}$	$5.99^{+0.84}_{-0.51}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RCS J0224−0002	0.778	02 24 00.0	−00 02 00	X-ray	$2.78^{+0.25}_{-0.25}$	$10.51^{+1.11}_{-1.28}$	$3.22^{+0.29}_{-0.29}$	$11.99^{+1.27}_{-1.46}$	Babyk et al. (2014)	200	0.27/0.73/0.73
CLG 1137.5+6625	0.78	11 40 23.9	+66 08 19	WL	$3.6^{+1.9}_{-1.9}$	$9.3^{+4.6}_{-4.6}$	$4.1^{+2.1}_{-2.1}$	$10.4^{+5.4}_{-5.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J2318.5+0034	0.78	23 18 31.5	+00 34 18	X-ray	$1.18^{+0.19}_{-0.17}$	$28.37^{+4.11}_{-3.18}$	$1.4^{+0.23}_{-0.2}$	$34.49^{+5.0}_{-3.87}$	Babyk et al. (2014)	200	0.27/0.73/0.73
MS 1137.5+6625	0.783	11 40 23.9	+66 08 19	SL	$3.3^{+0.2}_{-0.2}$	$6.5^{+0.7}_{-0.7}$	$3.8^{+0.2}_{-0.2}$	$7.2^{+0.8}_{-0.8}$	Comerford & Natarajan (2007)	200/virial	0.3/0.7/0.7
RX J1716.6+6708	0.81	17 16 49.6	+67 08 30	WL	$5.0^{+4.7}_{-4.7}$	$5.0^{+3.4}_{-3.4}$	$5.7^{+5.2}_{-5.2}$	$5.5^{+4.0}_{-4.0}$	Sereno et al. (2014)	200	0.3/0.7/0.7
MS 1054−0321	0.83	10 56 59.5	−03 37 28	WL	$0.9^{+0.8}_{-0.8}$	$23.0^{+16.4}_{-16.4}$	$1.1^{+0.9}_{-0.9}$	$28.1^{+22.5}_{-22.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
CL J0152−1357	0.84	01 52 41.0	−13 57 45	WL	$11.3^{+3.9}_{-3.9}$	$2.9^{+0.6}_{-0.6}$	$12.6^{+4.3}_{-4.3}$	$3.1^{+0.7}_{-0.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J1620.2+2929	0.87	16 20 12.0	+29 29 00	X-ray	$4.38^{+0.72}_{-0.71}$	$7.57^{+1.02}_{-1.04}$	$4.98^{+0.82}_{-0.81}$	$8.35^{+1.13}_{-1.15}$	Babyk et al. (2014)	200	0.27/0.73/0.73
CL J1226.9+3332	0.89	12 26 58.0	+33 32 54	WL	$4.3^{+1.1}_{-1.1}$	$10.1^{+2.3}_{-2.3}$	$4.8^{+1.2}_{-1.2}$	$11.1^{+2.6}_{-2.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
CL J1226.9+3332	0.89	12 26 58.0	+33 32 54	WL+SL	$4.0^{+0.9}_{-0.9}$	$15.6^{+1.0}_{-1.0}$	$4.5^{+1.1}_{-1.1}$	$17.2^{+1.1}_{-1.1}$	Merten et al. (2014)	2500/200/virial	0.27/0.73/0.7
CL J1226.9+3332	0.89	12 26 58.0	+33 32 54	X-ray	$2.04^{+0.32}_{-0.36}$	$143.19^{+15.26}_{-17.26}$	$2.35^{+0.37}_{-0.41}$	$164.38^{+17.52}_{-19.81}$	Babyk et al. (2014)	200	0.27/0.73/0.73
CL J1226.9+3332	0.89	12 26 58.0	+33 32 54	X-ray	$7.9^{+1.7}_{-1.4}$	$6.8^{+1.6}_{-1.2}$	$8.8^{+1.9}_{-1.5}$	$7.2^{+1.7}_{-1.3}$	Maughan et al. (2007)	200	0.3/0.7/0.7
CL J1604+4304	0.9	16 04 25.1	+43 04 53	WL	$9.4^{+5.8}_{-5.8}$	$4.0^{+2.4}_{-2.4}$	$10.5^{+6.4}_{-6.4}$	$4.2^{+2.6}_{-2.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J2319.8+0038	0.904	23 19 53.3	+00 38 13	X-ray	$3.27^{+0.56}_{-0.55}$	$40.96^{+4.25}_{-5.22}$	$3.72^{+0.64}_{-0.63}$	$45.74^{+4.75}_{-5.83}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RCS J2319.8+0038	0.904	23 19 53.3	+00 38 13	WL	$11.5^{+4.8}_{-4.8}$	$2.4^{+0.9}_{-0.9}$	$12.8^{+5.3}_{-5.3}$	$2.5^{+1.0}_{-1.0}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J0439−2904	0.951	04 39 38.0	−29 04 55	WL	$7.3^{+4.9}_{-4.9}$	$3.0^{+1.3}_{-1.3}$	$8.1^{+5.4}_{-5.4}$	$3.2^{+1.5}_{-1.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J0439−2904	0.951	04 39 38.0	−29 04 55	X-ray	$4.12^{+0.25}_{-0.21}$	$3.79^{+0.56}_{-0.27}$	$4.65^{+0.28}_{-0.24}$	$4.17^{+0.62}_{-0.3}$	Babyk et al. (2014)	200	0.27/0.73/0.73
XMMU J1230.3+1339	0.97	12 30 17.0	+13 39 01	WL	$4.0^{+14.0}_{-2.0}$	$8.8^{+4.2}_{-4.2}$	$4.5^{+15.8}_{-2.3}$	$9.7^{+4.6}_{-4.6}$	Lerchster et al. (2011)	200	0.27/0.73/0.72
XMMU J1230.3+1339	0.97	12 30 17.0	+13 39 01	WL	$2.1^{+2.1}_{-2.1}$	$24.4^{+15.4}_{-15.4}$	$2.4^{+2.3}_{-2.3}$	$27.5^{+18.8}_{-18.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J1511.0+0903	0.97	15 11 03.8	+09 03 15	WL	$11.4^{+5.5}_{-5.5}$	$1.6^{+0.7}_{-0.7}$	$12.6^{+6.0}_{-6.0}$	$1.7^{+0.8}_{-0.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
XMMU J1229.4+0151	0.98	12 29 28.8	+01 51 34	WL	$0.5^{+0.6}_{-0.6}$	$34.1^{+22.9}_{-22.9}$	$0.6^{+0.7}_{-0.7}$	$43.3^{+35.2}_{-35.2}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS 0221−0321	1.02	02 21 41	−03 21 47	WL	$11.6^{+5.2}_{-5.2}$	$1.6^{+0.6}_{-0.6}$	$12.8^{+5.7}_{-5.7}$	$1.7^{+0.6}_{-0.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J0220.9−0333	1.03	02 20 55.7	−03 33 10	WL	$5.6^{+4.4}_{-4.4}$	$4.0^{+2.1}_{-2.1}$	$6.2^{+4.8}_{-4.8}$	$4.3^{+2.4}_{-2.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
WARP J1415.1+3612	1.03	14 15 11.1	+36 12 03	WL	$4.0^{+2.1}_{-2.1}$	$3.3^{+2.3}_{-2.3}$	$4.5^{+2.3}_{-2.3}$	$3.6^{+2.6}_{-2.6}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J2345−3632	1.04	23 45 27.3	−36 32 50	WL	$2.7^{+2.6}_{-2.6}$	$2.3^{+1.7}_{-1.7}$	$3.0^{+2.9}_{-2.9}$	$2.5^{+2.0}_{-2.0}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J2156.7−0448	1.07	21 56 42.1	−04 48 04	WL	$7.9^{+5.4}_{-5.4}$	$0.9^{+0.7}_{-0.7}$	$8.7^{+5.9}_{-5.9}$	$1.0^{+0.8}_{-0.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RCS J0337−2844	1.1	03 37 50.4	−28 44 28	WL	$3.3^{+3.9}_{-3.9}$	$5.9^{+5.3}_{-5.3}$	$3.7^{+4.3}_{-4.3}$	$6.5^{+6.1}_{-6.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RX J0910.7+5422	1.11	09 10 45.0	+54 22 08	X-ray	$2.64^{+0.25}_{-0.21}$	$64.92^{+5.67}_{-7.34}$	$2.96^{+0.28}_{-0.24}$	$72.15^{+6.3}_{-8.16}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RX J0910.7+5422	1.11	09 10 45.0	+54 22 08	WL	$6.6^{+3.9}_{-3.9}$	$3.3^{+1.3}_{-1.3}$	$7.3^{+4.2}_{-4.2}$	$3.5^{+1.5}_{-1.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ISCS J1432.4+3332	1.11	14 32 29.1	+33 32 48	WL	$2.0^{+1.5}_{-1.5}$	$7.3^{+5.3}_{-5.3}$	$2.2^{+1.7}_{-1.7}$	$8.2^{+6.2}_{-6.2}$	Sereno et al. (2014)	200	0.3/0.7/0.7
XMMU J2205.8−0159	1.12	22 05 50.2	−01 59 29	WL	$4.7^{+3.3}_{-3.3}$	$2.0^{+1.3}_{-1.3}$	$5.2^{+3.6}_{-3.6}$	$2.2^{+1.5}_{-1.5}$	Sereno et al. (2014)	200	0.3/0.7/0.7
XLSS J0223−0436	1.22	02 23 03	−04 36 18	WL	$0.8^{+0.9}_{-0.9}$	$25.4^{+21.6}_{-21.6}$	$0.9^{+1.0}_{-1.0}$	$29.8^{+28.2}_{-28.2}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RDCS J1252−2927	1.24	12 52 54.4	−29 27 17	WL	$4.6^{+1.7}_{-1.7}$	$6.3^{+1.7}_{-1.7}$	$5.0^{+1.8}_{-1.8}$	$6.8^{+1.9}_{-1.9}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ISCS J1434.5+3427	1.24	14 34 28.5	+34 26 22	WL	$5.9^{+6.1}_{-6.1}$	$2.3^{+1.9}_{-1.9}$	$6.5^{+6.6}_{-6.6}$	$2.4^{+2.1}_{-2.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RDCS J0849+4452	1.26	08 48 56.2	+44 52 00	WL	$2.8^{+1.0}_{-1.0}$	$3.4^{+1.6}_{-1.6}$	$3.1^{+1.1}_{-1.1}$	$3.7^{+1.8}_{-1.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ISCS J1429.3+3437	1.26	14 29 18.5	+34 37 25	WL	$0.4^{+0.5}_{-0.5}$	$39.0^{+28.1}_{-28.1}$	$0.5^{+0.6}_{-0.6}$	$48.8^{+41.4}_{-41.4}$	Sereno et al. (2014)	200	0.3/0.7/0.7
RX J0849+4452	1.26	08 53 43.6	+35 45 53.8	X-ray	$1.14^{+0.11}_{-0.1}$	$4.67^{+0.66}_{-0.47}$	$1.28^{+0.12}_{-0.11}$	$5.37^{+0.76}_{-0.54}$	Babyk et al. (2014)	200	0.27/0.73/0.73
RDCS J0848+4453	1.27	08 48 34.2	+44 53 35	WL	$2.8^{+4.4}_{-4.4}$	$2.1^{+2.4}_{-2.4}$	$3.1^{+4.8}_{-4.8}$	$2.3^{+2.8}_{-2.8}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ISCS J1432.6+3436	1.36	14 32 38.3	+34 36 49	WL	$5.3^{+5.5}_{-5.5}$	$3.4^{+2.7}_{-2.7}$	$5.8^{+5.9}_{-5.9}$	$3.6^{+3.0}_{-3.0}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ISCS J1434.7+3519	1.37	14 34 46.3	+35 19 45	WL	$0.7^{+0.9}_{-0.9}$	$11.1^{+15.9}_{-15.9}$	$0.8^{+1.0}_{-1.0}$	$13.0^{+20.1}_{-20.1}$	Sereno et al. (2014)	200	0.3/0.7/0.7
XMMU J2235.3−2557	1.39	22 35 20.6	−25 57 42	WL	$2.1^{+1.4}_{-1.4}$	$12.7^{+11.7}_{-11.7}$	$2.3^{+1.5}_{-1.5}$	$13.9^{+13.2}_{-13.2}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ISCS J1438.1+3414	1.41	14 38 09.5	+34 14 19	WL	$6.9^{+5.9}_{-5.9}$	$2.6^{+2.0}_{-2.0}$	$7.5^{+6.3}_{-6.3}$	$2.7^{+2.2}_{-2.2}$	Sereno et al. (2014)	200	0.3/0.7/0.7
ISCS J1438.1+3414	1.41	14 38 09.5	+34 14 19	X-ray	$0.55^{+0.05}_{-0.08}$	$293.15^{+18.27}_{-36.84}$	$0.63^{+0.06}_{-0.09}$	$353.98^{+22.06}_{-44.48}$	Babyk et al. (2014)	200	0.27/0.73/0.73
XMMXCS J2215.9−1738	1.45	22 15 58.5	−17 38 02	WL	$8.7^{+5.9}_{-5.9}$	$2.7^{+1.6}_{-1.6}$	$9.4^{+6.3}_{-6.3}$	$2.8^{+1.7}_{-1.7}$	Sereno et al. (2014)	200	0.3/0.7/0.7

for a flat cosmology ($\Omega_{\rm R} = 0$), and where $x = \Omega(z) - 1$. Furthermore,

$$\Omega(z) = \frac{\Omega_0\,(1+z)^3}{E(z)^2} \quad \text{(A2)}$$

with $E(z)$ representing the Hubble function,

$$E(z)^2 = \Omega_0\,(1+z)^3 + \Omega_{\rm R}\,(1+z)^2 + \Omega_\Lambda. \quad \text{(A3)}$$

This approximation is accurate to 1 per cent within the range of $\Omega(z) = 0.1$–1.

(iii) All data reported in Comerford & Natarajan (2007) were also reported in this study using their original cosmological model [with the exception of King, Clowe & Schneider (2002)]. We follow this convention, and continued to report measurements in Table A1 in the cosmology found in the source paper.

(iv) All new measurements added to the data set which do not appear in Comerford & Natarajan (2007) received redshifts from previous entries (if available; meaning that if the cluster already exists in the data base, the first reported value of the redshift is used). Differences in these redshifts are minimal (∼1 per cent), and

Table A2. A summary of the references.

Reference	No. of measurements	No. of clusters (Unique)	Method(s)
Babyk et al. (2014)	128	128	X-ray
Sereno et al. (2014)	109	104	WL
Rines & Diaferio (2006)	72	72	CM
Oguri et al. (2012)	56	28	WL+SL, WL
Ettori et al. (2011)	44	44	X-ray
Wojtak & Łokas (2010)	41	41	LOSVD
Schmidt & Allen (2007)	31	31	X-ray
Okabe et al. (2010)	26	26	WL
Xu et al. (2001)	22	22	X-ray
Abdullah et al. (2011)	20	20	LOSVD
Merten et al. (2014)	19	19	WL+SL
Gastaldello et al. (2007b)	16	16	X-ray
Molikawa et al. (1999)	13	13	X-ray
Voigt & Fabian (2006)	12	12	X-ray
Vikhlinin et al. (2006)	12	12	X-ray
Oguri et al. (2009)	12	4	WL+SL, SL, WL
Bardeau et al. (2007)	11	11	WL
Pointecouteau et al. (2005)	10	10	X-ray
Allen et al. (2003)	10	10	X-ray
Rines et al. (2003)	9	9	CM
Okabe & Umetsu (2008)	9	9	WL
Łokas et al. (2006)	6	6	LOSVD
Umetsu et al. (2011a)	5	5	WL
Comerford & Natarajan (2007)	5	5	SL
Umetsu et al. (2009)	4	4	WL
Umetsu et al. (2015)	3	1	WL+SL, SL, WL
Pratt & Arnaud (2005)	3	3	X-ray
Halkola et al. (2006)	3	1	WL+SL, SL, WL
Corless et al. (2009)	3	3	WL
Clowe (2003)	3	3	WL
Clowe & Schneider (2001a)	3	3	WL
Zitrin et al. (2010)	2	1	WL+SL, WL
Umetsu & Broadhurst (2008)	2	1	WL+SL, WL
Okabe et al. (2015)	2	2	WL
Markevitch et al. (1999)	2	2	X-ray
Gavazzi (2005)	2	1	WL+SL, SL
Gavazzi et al. (2003)	2	1	SL, WL
Donnarumma et al. (2009)	2	1	X-ray, SL
Démoclès et al. (2010)	2	2	X-ray
Clowe & Schneider (2002)	2	2	WL
Buckley-Geer et al. (2011)	2	1	WL+SL, WL
Biviano et al. (2013)	2	1	CM, LOSVD
Zitrin et al. (2011)	1	1	WL+SL
Zekser et al. (2006)	1	1	SL
Williams & Saha (2004)	1	1	SL
Wang et al. (2005)	1	1	X-ray
Schirmer et al. (2010)	1	1	WL
Pointecouteau et al. (2004)	1	1	X-ray
Paulin-Henriksson et al. (2007)	1	1	WL
Okabe et al. (2014)	1	1	WL
Okabe et al. (2011)	1	1	WL
Oguri et al. (2013)	1	1	WL+SL
Medezinski et al. (2007)	1	1	WL
McLaughlin (1999)	1	1	X-ray
Maughan et al. (2007)	1	1	X-ray
Łokas & Mamon (2003)	1	1	LOSVD
Limousin et al. (2007)	1	1	WL+SL
Lerchster et al. (2011)	1	1	WL
Lewis et al. (2003)	1	1	X-ray
Kubo et al. (2007)	1	1	WL
Kneib et al. (2003)	1	1	WL+SL
Kling et al. (2005)	1	1	WL
King et al. (2002)	1	1	WL
Khosroshahi et al. (2006)	1	1	X-ray

Table A2 – *continued*

Reference	No. of measurements	No. of clusters (Unique)	Method(s)
Kelson et al. (2002)	1	1	LOSVD
Israel et al. (2010)	1	1	WL
Gruen et al. (2013)	1	1	WL
Gavazzi et al. (2009)	1	1	WL
Gastaldello et al. (2008)	1	1	X-ray
Gastaldello et al. (2007a)	1	1	X-ray
Gavazzi (2002)	1	1	SL
Eichner et al. (2013)	1	1	SL
David et al. (2001)	1	1	X-ray
Coe et al. (2010)	1	1	SL
Clowe & Schneider (2001b)	1	1	WL
Buote et al. (2005)	1	1	X-ray
Buote & Lewis (2004)	1	1	X-ray
Broadhurst et al. (2005b)	1	1	SL
Broadhurst et al. (2005a)	1	1	WL
Bardeau et al. (2005)	1	1	WL
Andersson & Madejski (2004)	1	1	X-ray

do not contribute significant uncertainty to the inferred *c*–*M* relation. Right ascension (RA) and declination (Dec.) measurements were almost exclusively obtained from NED.[4] Lastly, due to the plurality of cluster naming conventions (nearly one for each survey or study), cluster names were cross-matched with previous entries using NED in order to ensure that our cluster sample does not contain artificially over-represented objects.

APPENDIX B: LENSING COSMOLOGY CORRECTION

In this section, we derive the correction to the measured cluster concentration and mass (assuming an NFW profile), due to assumed cosmological model. Beginning with the total mass enclosed within a sphere of radius r,

$$M_{\rm NFW}(\leq r) = 4\pi r_{\rm s}^3 \rho_{\rm s}\left[\log\left(1 + r/r_{\rm s}\right) - \frac{r/r_{\rm s}}{1 + r/r_{\rm s}}\right], \tag{B1}$$

where $r_{\rm s}$ is the scale radius, and is used to scale the radial coordinate which we will denote as $x = r/r_{\rm s}$. In terms of projected quantities, following Sereno, Lubini & Jetzer (2010) we can express the scale radius and scale density $\rho_{\rm s}$ as

$$\rho_{\rm s} = \frac{\Sigma_{\rm cr}}{r_{\rm s}}\kappa_{\rm s} \tag{B2}$$

$$r_{\rm s} = D_{\rm d}\theta_{\rm s}, \tag{B3}$$

where $\kappa_{\rm s}$ is the normalization, $\Sigma_{\rm cr}$ is the critical surface mass density for lensing, $D_{\rm d}$ is the angular diameter distance to the lens, and $\theta_{\rm s}$ is the angular scale radius,

$$\Sigma_{\rm cr} = \frac{c^2 D_{\rm s}}{4\pi G D_{\rm ds} D_{\rm d}}. \tag{B4}$$

At this point, it should be noted that the scale convergence and projected (angular) scale radius do not depend upon cosmology when fitting the shear profile. The mass within radius r_Δ and its corresponding concentration c_Δ can be expressed in terms of projected quantities

$$M_{\rm NFW}(\leq r_\Delta) = \frac{c^2 D_{\rm d} D_{\rm s}\kappa_{\rm s}\theta_{\rm s}^2}{G D_{\rm ds}}\left[\log\left(1 + c_\Delta\right) - \frac{c_\Delta}{1 + c_\Delta}\right] \tag{B5}$$

$$c_\Delta = \frac{r_\Delta}{r_{\rm s}} = \frac{1}{D_{\rm d}\theta_{\rm s}}\left[\frac{2M_{\rm NFW}(\leq r_\Delta)}{\Delta \cdot H^2}\right]^{1/3}, \tag{B6}$$

where Δ is the factor by which the density inside r_Δ is $\Delta \cdot \rho_{\rm cr}$, and H is the Hubble parameter. Next, by solving the former two expressions for $\kappa_{\rm s}$ and $\theta_{\rm s}$ (which are conserved measurements for any arbitrary choice of cosmology), we obtain a system of equations which then relate the lensing mass and concentration in any two cosmologies, Ω_1 and Ω_2. In order to simplify the notation a bit, the mass and concentration corresponding to r_Δ in cosmology $\Omega_{\rm x}$ will henceforth be expressed as $M_\Delta(\Omega_{\rm x})$ and $c_\Delta(\Omega_{\rm x})$, respectively,

$$\frac{c_\Delta(\Omega_2)^3}{M_\Delta(\Omega_2)} = \frac{c_\Delta(\Omega_1)^3}{M_\Delta(\Omega_1)} \cdot R \tag{B7}$$

$$\frac{f(c_\Delta(\Omega_2))}{M_\Delta(\Omega_2)} = \frac{f(c_\Delta(\Omega_1))}{M_\Delta(\Omega_1)} \cdot T. \tag{B8}$$

The ratios R and T, and the function f, can be expressed in terms of the following cosmology-dependent quantities:

$$R = \frac{D_{\rm d}(\Omega_1)^3 H(\Omega_1)^2 \Delta(\Omega_1)}{D_{\rm d}(\Omega_2)^3 H(\Omega_2)^2 \Delta(\Omega_2)} = \frac{D_{\rm d}(\Omega_1)^3}{D_{\rm d}(\Omega_2)^3} \cdot \frac{\Delta(\Omega_1)\rho_{\rm cr}(\Omega_1)}{\Delta(\Omega_2)\rho_{\rm cr}(\Omega_1)} \tag{B9}$$

$$T = \frac{D_{\rm s}(\Omega_1) D_{\rm d}(\Omega_1)}{D_{\rm ds}(\Omega_1)} \frac{D_{\rm ds}(\Omega_2)}{D_{\rm s}(\Omega_2) D_{\rm d}(\Omega_2)} = \frac{\Sigma_{\rm cr}(\Omega_2)}{\Sigma_{\rm cr}(\Omega_1)} \tag{B10}$$

$$f(x) = \log(x) - \frac{x}{1 + x}. \tag{B11}$$

Solving this system of equations can be done by numerically solving for $c_\Delta(\Omega_2)$:

$$\frac{f(c_\Delta(\Omega_2))}{c_\Delta(\Omega_2)^3} = \frac{f(c_\Delta(\Omega_1))}{c_\Delta(\Omega_1)^3} \cdot \frac{T}{R}. \tag{B12}$$

Lastly, the mass $M_\Delta(\Omega_2)$ is obtained by direct substitution of the numerical result from equation (B12).

[4] https://ned.ipac.caltech.edu/

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