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Authors	Negrete, C. A.; Dultzin, D.; MARZIANI, Paola; Esparza, D.; Sulentic, J. W.; et al.
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J/A+A/620/A118 Highly Accreting Quasars: SDSS Low z Catalog (Negrete+, 2018)

Highly accreting quasars: The SDSS low-redshift catalog. Negrete C.A., Dultzin D., Marziani P., Esparza D., Sulentic J. W., del Olmo A., Martinez-Aldama M. L., Garcia-Lopez A., D'Onofrio M, Bon N. Bon E. <Astron. Astrophys. 620, Al18 (2018)> =2018A&A...620A.118N (SIMBAD/NED BibCode)

ADC_Keywords: Surveys ; QSOs ; Redshifts ; Spectroscopy

Keywords: catalogs - galaxies: active - galaxies: distances and redshifts galaxies: nuclei - quasars: emission lines - quasars: general

Abstract:

The most highly accreting quasars are of special interest in studies of the physics of active galactic nuclei (AGNs) and host galaxy evolution. Quasars accreting at high rates (L/LEdd-1) hold promise for use as "standard candles": distance indicators detectable at very high redshift. However, their observational properties are still largely unknown.

We seek to identify a significant number of extreme accretors. A large sample can clarify the main properties of quasars radiating near L/LEdd~1 (in this paper they are designated as extreme Population A quasars or simply as extreme accretors) in the H β spectral range for redshift <0.8.

We use selection criteria derived from four-dimensional Eigenvector 1 (4DE1) studies to identify and analyze spectra for a sample of 334 candidate sources identified from the SDSS DR7 database. The source spectra were chosen to show a ratio $R_{\rm FeII}$ between the FeII emission blend at $\lambda4570$ and ${\rm H}\beta,$ $R_{\rm FeII} > 1.$ Composite spectra were analyzed for systematic trends as a function of FeII strength, line width, and [OIII] strength. We introduced tighter constraints on the signal-to-noise ratio (S/N) and $R_{\rm FeII}$ values that allowed us to isolate sources most likely to be extreme accretors.

We provide a database of detailed measurements. Analysis of the data allows us to confirm that H β shows a Lorentzian function with a full width at half maximum (FWHM) of H β ≤4000km/s. We find no evidence for a discontinuity at 2000km/s in the 4DE1, which could mean that the sources below this FWHM value do not belong to a different AGN class. Systematic [OIII] blue shifts, as well as a blueshifted component in H β are revealed. We interpret the blueshifts as related to the signature of outflowing gas from the quasar central engine. The FWHM of H β is still affected by the blueshifted emission; however, the effect is non-negligible if the FWHM H β is used as a "virial broadening estimator" (VEE). We emphasize a strong effect of the viewing angle on H β broadening, deriving a correction for those sources that shows major disagreement between virial and concordance cosmology luminosity values.

The relatively large scatter between concordance cosmology and virial luminosity estimates can be reduced (by an order of magnitude) if a correction for orientation effects is included in the FWHM H β value; outflow and sample definition yield relatively minor effects.

Description:

Table 4: contains 103 spectra with an erroneous z identification. The redshift values are given by: the SDSS database (erroneous values), Shen et al. (2011, Cat. J/ApJS/194/45) and Hewett & Wilde (2010, Cat. J/MNRAS/405/2302) (correct values).

Table 5: Contains the data described in the Table 2, which are the measurements of the individual spectral fits and derived computations. A detailed description of this table is in Sec. 4.2.

File Summary:

FileName	Lrec	L Reco	rds Explanations
ReadMe	80		This file
<u>table1.dat</u>	51	101	Objects with an erroneous z identification
table2.dat	543	302	Measurements of the individual spectral fits

See also:

<u>J/MNRAS/405/2302</u> : Improved redshifts for SDSS quasar spectra (Hewett+, 2010) <u>J/ApJS/194/45</u> : QSO properties from SDSS-DR7 (Shen+, 2011)

Byte-by-byte Description of file: <u>table1.dat</u>

Bytes	Format	Units	Label	Explanations
1- 19	A19		SDSS	SDSS Name
21- 27	F7.5		zSDSS	SDSS DR7 redshift
29- 35	F7.5		e_zSDSS	SDSS redshift error
37- 43	F7.5		zShen	Shen et al. (2011, Cat. <u>J/ApJS/194/45</u>) redshift
45- 51	F7.5		zHW	Hewitt & Wilde (2010, Cat. <u>J/MNRAS/405/2302</u>)
				redshift

Byte-by-byte Description of file: <u>table2.dat</u>

Bytes	Format	Units	Label	Explanations
1- 19	A19		SDSS	SDSS DR7 designation
21- 27	F7.5		z	Redshift considered in this work (1)
29- 35	F7.5		e_z	Redshift error
37-43	F7.5		zSDSS	Redshift SDSS DR7
45 - 51 53 - 57	F7.5 F5 2		e_zsuss s/N	S/N ratio measured around 5100Å
59-62	F4.2	10-19W/m2/nm	a C5100	Continuum flux at 5100Å
				in $10^{-17} \text{erg/cm}^2/\text{s/Å}$
64- 67	F4.2	<u>10-19W/m2/nm</u>	<u>e_</u> C5100	Continuum flux at 5100Å error
69- 73	F5.1		N5100	Continuum normalization at 5100Å
75- 79	F5.2		e_N5100	Continuum normalization at 5100Å
01 05	F F 2		almha	error
87-90	F3.2 F4.2		e alpha	Power law index error
92	I1		FaintHG	Faint contribution of the HG
94-101	F8.2	<u>10-20W/m2</u>	FHbBC	${ m H}eta_{ m BC}$ line flux
				in 10 ⁻¹⁷ erg/cm ² /s
103-109	F7.2	<u>10-20W/m2</u>	e_FHbBC	${ m H}eta_{BC}$ line flux error
111-115	F5.2	<u>0.1nm</u>	EWHbBC	${ m H}eta_{BC}$ rest-frame equivalent
				width
117-121	F5.2	<u>0.1nm</u>	e_EWHbBC	${ m H}eta_{BC}$ rest-frame equivalent
				width error
123-127	15	<u>km/s</u>	ShiftHbBC	Hp _{BC} shift with respect to
120 122	TRE 1	Irm (a	c ChiftubDC	the rest-irame
129-155	r J • 1	<u>KIII/S</u>	e_surrendec	the rest frame error
135-142	F8.3	km/s	FWHMHbBC	HBpg FWHM
144-151	F8.3	km/s	e FWHMHbBC	HBpg FWHM error
153	A1		Hbprofile	[GL] G = Gaussian. L = Lorentzian
155-161	F7.2	<u>10-20W/m2</u>	FHbblue	HβBLUE Line Flux
163-168	F6.2	<u>10-20W/m2</u>	e_FHbblue	$H\beta$ BLUE Line Flux error
170-174	F5.2	<u>0.1nm</u>	EWHbblue	HβBLUE rest-frame equivalent
176-179	F4.2	<u>0.1nm</u>	e_EWHbblue	Width HβBLUE rest-frame equivalent width error
181-188	F8.2	km/s	ShiftHbblue	HBBLUE shift
190-196	F7.2	<u>km/s</u>	e_ShiftHbblue	HβBLUE shift error
198-201	I4	<u>km/s</u>	FWHMHbblue	HβBLUE FWHM
203-206	I4 E0 2	<u>km/s</u>	e_FWHMHbblue	HβBLUE FWHM error
217-223	F7.2	$\frac{10-20W/m2}{10-20W/m2}$	e FFeII	FeII flux error
225-230	F6.2	<u>0.1nm</u>	EWFeII	FeII rest-frame equivalent width
232-235	F4.1	<u>0.1nm</u>	e_EWFeII	FeII rest-frame equivalent width
007 040				error
237-240	A4 F5 3		POP	Population designation Patio between the FeII emission bland
242-240	13.5		RICII	at λ 4570 and H β
248-252	F5.3		e_RFeII	RFeII error
254-259	F6.3		AIHb	H eta asymetry (only objects with
261 265	F F 2		o ATUb	Hbblue)
261-265	F3.3		e_AInd Kurt	np asymetry error Kurtosis
272-275	F4.2		e Kurt	Kurtosis error
277-281	15	<u>km/s</u>	C010	H eta centroid at 0.10 of the
				line intensity
283-286	14	<u>km/s</u>	e_C010	H¢ centroid at 0.10 of the
288-291	I4	<u>km/s</u>	C025	$H\beta$ centroid at 0.25 of the
000 005		1 (line intensity
293-295	13	<u>KIII/S</u>	e_C025	line intensity error
297-300	I4	<u>km/s</u>	C050	$H\beta$ centroid at 0.50 of the
302-304	I3	<u>km/s</u>	e_C050	$H\beta$ centroid at 0.50 of the
306-309	I4	<u>km/s</u>	C075	line intensity error H β centroid at 0.75 of the
311-313	13	<u>km/s</u>	e_C075	line intensity H β centroid at 0.75 of the
315-318	I4	<u>km/s</u>	C090	line intensity error H eta centroid at 0.90 of the
				line intensity
320-322	13	<u>km/s</u>	e_C090	H β centroid at 0.90 of the

https://cdsarc.unistra.fr/viz-bin/ReadMe/J/A+A/620/A118?format=html&tex=true

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Note (1): measured using the ${\rm H}\beta_{NC}$ or [OIII] $\lambda5007$ line (see text).

Acknowledgements:

Alenka Negrete, alenka(at)astro.unam.mx

(End)

Patricia Vannier [CDS] 10-Sep-2018

The document above follows the rules of the <u>Standard Description for Astronomical Catalogues</u>; from this documentation it is possible to generate **f77** program to load files <u>into</u> <u>arrays</u> or <u>line by line</u>

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