



Publication Year	2024
Acceptance in OA	2026-01-14T13:22:51Z
Title	Euclid preparation: LI. Forecasting the recovery of galaxy physical properties and their relations with template-fitting and machine-learning methods
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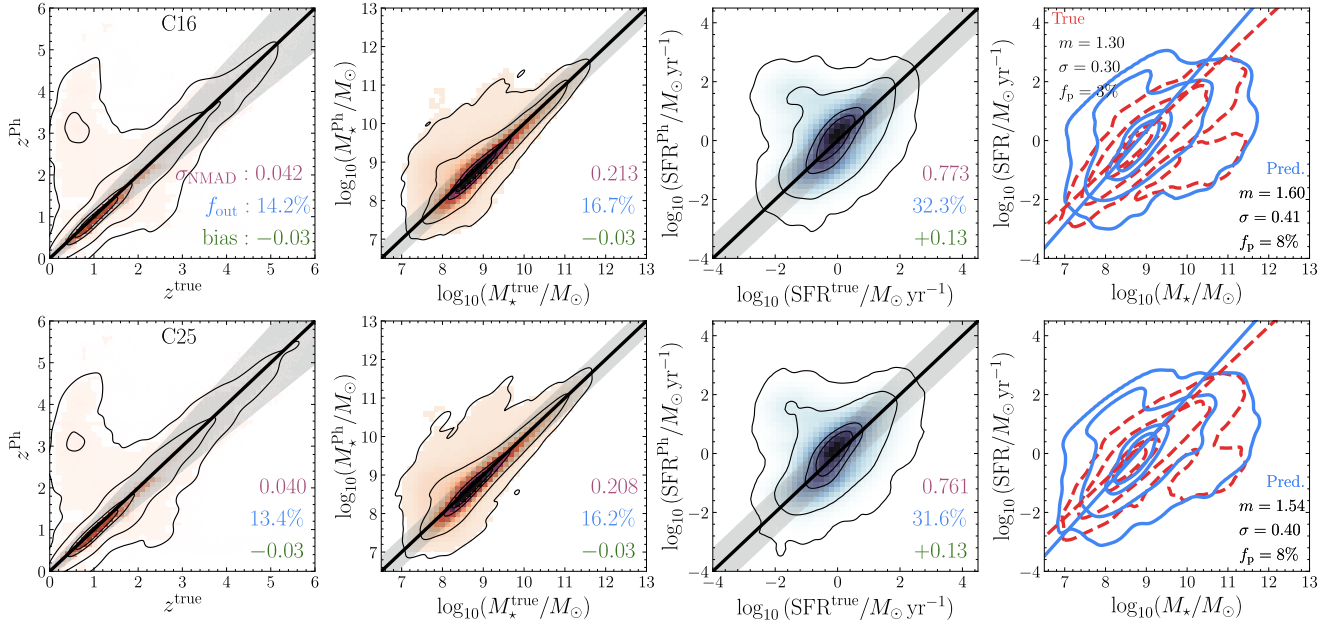


Fig. B.1. Phosphoros results on two simulated Euclid auxiliary fields, with 16 (C16, bottom panel) and 25 (C25, bottom panel) ROS each. The ground truth is plotted against the Phosphoros recovered parameters. The black line is the 1:1 relation; the shaded area is the region beyond which a prediction is an outlier. In every plot, the four contours are the area containing 98%, 86%, 39% (corresponding to the 3σ , 2σ and 1σ levels for a 2D histogram) and 20% of the sample. For SFMS the true distribution is reported in red (dashed), the predicted one in blue (solid). The lines are the ODR best-fit to the (passive-removed) distribution. The reported metrics are NMAD (purple), the outlier fraction f_{out} (blue) and the bias (green) for the photometric redshifts and physical parameters, as well as the slope m , scatter σ and fraction of passive galaxies f_p for the SFMS, all defined in Sect. 3.6.

Table C.1. Metrics for the EWS, with the paired labels approach.

	CSMR			CCR			DLNN			nnpz			
	NMAD	f_{out}	bias	NMAD	f_{out}	bias	NMAD	f_{out}	bias	NMAD	f_{out}	bias	
C16	z	0.07	24%	-0.03	0.06	20%	-0.03	0.07	22%	-0.03	0.06	18%	-0.04
	M_*	0.25	20%	-0.10	0.24	20%	-0.08	0.25	21%	-0.09	0.23	17%	-0.01
	SFR	0.82	34%	-0.05	0.80	33%	-0.04	0.83	35%	-0.11	0.70	28%	0.16
C25	z	0.07	24%	-0.03	0.06	20%	-0.03	0.07	25%	-0.03	0.06	18%	-0.04
	M_*	0.25	21%	-0.11	0.24	21%	-0.08	0.25	21%	-0.09	0.22	17%	-0.05
	SFR	0.82	34%	-0.08	0.80	33%	-0.07	0.82	34%	0.03	0.69	28%	0.14
EDF	z	0.06	21%	-0.01	0.05	17%	-0.01	0.07	22%	-0.03	0.05	16%	-0.02
	M_*	0.21	22%	-0.03	0.19	20%	-0.05	0.22	23%	-0.08	0.19	17%	0.01
	SFR	0.79	30%	-0.06	0.75	28%	-0.09	0.81	31%	-0.12	0.65	25%	-0.09

Notes. The leftmost column refers to the training (reference) sample, i.e., C25 means a model trained with features and labels from the C25 simulated auxiliary field. All the models are then tested on features from the EWS simulation and ground truth labels. The reported metrics are the ones presented in Sect. 3.6. We are not reporting the paired labels EWS row as it is the same as the mixed labels T.lab. Wide-Wide case in Figs. 5–7 and Table 5. M_* refers to $\log_{10}(M_*/M_\odot)$, SFR to $\log_{10}(\text{SFR}/M_\odot \text{ yr}^{-1})$.

Table C.2. Metrics for the recovered SFMS in the EWS, with the paired labels approach.

	CSMR			CCR			DLNN			nnpz		
	m	σ	f_p	m	σ	f_p	m	σ	f_p	m	σ	f_p
C16	1.29	0.41	0.14	1.32	0.39	0.14	1.35	0.39	0.16	1.27	0.39	0.08
C25	1.28	0.40	0.14	1.28	0.40	0.14	1.32	0.42	0.13	1.28	0.38	0.08
EDF	1.27	0.39	0.14	1.23	0.39	0.14	1.31	0.42	0.17	1.23	0.36	0.14

Notes. The reported metrics are the one presented in Sect. 3.6.