



<b>Publication Year</b>	2020
<b>Acceptance in OA @INAF</b>	2022-03-29T13:32:27Z
<b>Title</b>	VizieR Online Data Catalog: CLASH galaxies photometric redshifts in 25 CIG (Molino+, 2017)
<b>Authors</b>	Molino, A.; Benitez, N.; Ascaso, B.; Coe, D.; Postman, M.; et al.
<b>Handle</b>	<a href="http://hdl.handle.net/20.500.12386/32043">http://hdl.handle.net/20.500.12386/32043</a>



J/MNRAS/470/95 CLASH galaxies photometric redshifts in 25 ClG (Molino+, 2017)

CLASH: accurate photometric redshifts with 14 HST bands in massive galaxy cluster cores.

Molino A., Benitez N., Ascaso B., Coe D., Postman M., Jouvel S., Host O., Lahav O., Seitz S., Medezinski E., Rosati P., Schoenell W., Koekemoer A., Jimenez-teja Y., Broadhurst T., Melchior P., Balestra I., Bartelmann M., Bouwens R., Bradley L., Czakon N., Donahue M., Ford H., Graur O., Graves G., Grillo C., Infante L., Jha S.W., Kelson D., Lazkoz R., Lemze D., Maoz D., Mercurio A., Meneghetti M., Merten J., Moustakas L., Nonino M., Orgaz S., Riess A., Rodney S., Sayers J., Umetsu K., Zheng W., Zitrin A.  
<Mon. Not. R. Astron. Soc., 470, 95-113 (2017)>  
[=2017MNRAS.470...95M](#) (SIMBAD/NED BibCode)

**ADC\_Keywords:** Clusters, galaxy ; Galaxies, photometry ; Redshifts

**Keywords:** methods: data analysis - methods: statistical -  
large-scale structure of Universe - cosmology: observations - catalog

**Abstract:**

We present accurate photometric redshifts for galaxies observed by the Cluster Lensing And Supernova survey with Hubble (CLASH). CLASH observed 25 massive galaxy cluster cores with the Hubble Space Telescope in 16 filters spanning 0.2-1.7 $\mu$ m. Photometry in such crowded fields is challenging. Compared to our previously released catalogues, we make several improvements to the photometry, including smaller apertures, intracluster light subtraction, point spread function matching and empirically measured uncertainties. We further improve the Bayesian photometric redshift estimates by adding a redder elliptical template and by inflating the photometric uncertainties of the brightest galaxies. The resulting photometric redshift accuracies are  $dz/(1+z) \sim 0.8, 1.0$  and  $2.0$  per cent for galaxies with I-band F814W AB magnitudes  $<18, 20$  and  $23$ , respectively. These results are consistent with our expectations. They improve on our previously reported accuracies by a factor of 4 at the bright end and a factor of 2 at the faint end. Our new catalogue includes 1257 spectroscopic redshifts, including 382 confirmed cluster members. We also provide stellar mass estimates. Finally, we include lensing magnification estimates of background galaxies based on our public lens models. Our new catalogue of all 25 CLASH clusters is available via Mikulski Archive for Space Telescopes. The analysis techniques developed here will be useful in other surveys of crowded fields, including the Frontier Fields and surveys carried out with Javalambre-Physics of the Accelerated Universe Astrophysical Survey and James Webb Space Telescope.

**Description:**

New photometric redshift catalogue for the 25 CLASH massive galaxy clusters. The catalogue includes astrometric, morphologic, photometric and photo-z information for all detected sources in an NIR detection image (e.g. a weighted sum of WFC3/IR images: F105W, F110W, F125W, F140W, F160W).

**File Summary:**

FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
<a href="#">table1.dat</a>	60	25	The CLASH galaxy cluster sample
<a href="#">a383.dat</a>	812	1912	Abell 383 photometric redshift catalogue
<a href="#">a209.dat</a>	812	2069	Abell 209 photometric redshift catalogue
<a href="#">a1423.dat</a>	812	1984	Abell 1423 photometric redshift catalogue
<a href="#">a2261.dat</a>	812	1728	Abell 2261 photometric redshift catalogue
<a href="#">rxj2129.dat</a>	812	1547	RX J2129+0005 photometric redshift catalogue
<a href="#">a611.dat</a>	812	1123	Abell 611 photometric redshift catalogue
<a href="#">ms2137.dat</a>	812	1736	MS2137-2353 photometric redshift catalogue
<a href="#">rxj1532.dat</a>	812	1347	RX J1532.8+3021 photometric redshift catalogue
<a href="#">rxj2248.dat</a>	812	1645	RX J2248-4431 photometric redshift catalogue
<a href="#">macs1931.dat</a>	812	1633	MACS J1931-26 photometric redshift catalogue
<a href="#">macs1115.dat</a>	812	1376	MACS J1115+0129 photometric redshift catalogue
<a href="#">macs1720.dat</a>	812	1609	MACS J1720+3536 photometric redshift catalogue
<a href="#">macs0429.dat</a>	812	1677	MACS J0429-02 photometric redshift catalogue
<a href="#">macs0416.dat</a>	812	1754	MACS J0416-24 photometric redshift catalogue
<a href="#">macs1206.dat</a>	812	1668	MACS J1206-08 photometric redshift catalogue
<a href="#">macs0329.dat</a>	812	1617	MACS J0329-02 photometric redshift catalogue
<a href="#">rxj1347.dat</a>	812	1698	RX J1347-1145 photometric redshift catalogue
<a href="#">macs1311.dat</a>	812	1641	MACS J1311-03 photometric redshift catalogue
<a href="#">macs1423.dat</a>	812	1709	MACS J1423.8+2404 photometric redshift catalogue
<a href="#">macs1149.dat</a>	812	1656	MACS J1149+22 photometric redshift catalogue
<a href="#">macs0717.dat</a>	812	1822	MACS J0717+37 photometric redshift catalogue
<a href="#">macs2129.dat</a>	812	1845	MACS J2129+0005 photometric redshift catalogue

<a href="#">macs0647.dat</a>	812	1774	MACS J0647+70 photometric redshift catalogue
<a href="#">macs0744.dat</a>	812	1792	MACS J0744+39 photometric redshift catalogue
<a href="#">clj1226.dat</a>	812	1940	CL J1226+3332 photometric redshift catalogue

**See also:**

<https://archive.stsci.edu/prepds/clash> : CLASH home Page

**Byte-by-byte Description of file:** [table1.dat](#)

Bytes	Format	Units	Label	Explanations
1- 17	A17	---	Name	Cluster name
19- 23	F5.3	---	z	Mean spectroscopic redshift
27- 34	F8.4	<a href="#">deg</a>	RAdeg	Right ascension (J2000)
37- 44	F8.4	<a href="#">deg</a>	DEdeg	Declination (J2000)
48- 51	I4	---	Ngal	Number of galaxies in the associated catalog
53- 60	A8	---	Cluster	Cluster short name

**Byte-by-byte Description of file:** [\[acmr\]\\*.dat](#)

Bytes	Format	Units	Label	Explanations
1- 23	A23	---	CLASHID	Object ID Number [clash*_cluster*_nir_*SExtID*]
25- 32	A8	---	Cluster	Cluster short Name
34- 41	F8.4	<a href="#">deg</a>	RAdeg	Right Ascension (J2000)
43- 50	F8.4	<a href="#">deg</a>	DEdeg	Declination (J2000)
52- 59	F8.3	<a href="#">pix</a>	Xpos	X-pixel coordinate
61- 68	F8.3	<a href="#">pix</a>	Ypos	Y-pixel coordinate
70- 74	I5	<a href="#">pix</a>	Area	Isophotal aperture area (pixels)
76- 81	F6.2	<a href="#">arcsec</a>	FWHM	Full width at half maximum for detection image
83- 88	F6.2	---	s2n	Signal to Noise (SEXT_FLUX_AUTO/SEXT_FLUX_ERR_AUTO)
90- 91	I2	---	photFlag	SExtractor Photometric Flag
93- 94	I2	---	nfobs	Number Filters Observed (out of 24)
96- 97	I2	---	nfdet	Number Filters Detected (out of 24)
99	I1	---	PS	[0/1] Pointsource flag (0: extended / 1: point-like)
101-106	F6.2	---	theta	Position Angle (CCW/x)
108-114	F7.3	<a href="#">pix</a>	a	Profile RMS along major axis
116-121	F6.3	<a href="#">pix</a>	b	Profile RMS along minor axis
123-129	F7.4	---	Backg	Background-signal subtracted from Detection
131-138	F8.3	<a href="#">pix</a>	rf	Fraction-of-light radii
140-143	F4.2	<a href="#">pix</a>	rk	Kron-apertures in units of A or B
145-149	F5.2	<a href="#">pix</a>	rp	Petrosian radii
151-159	F9.4	<a href="#">deg</a>	RABdeg	BCG position in Right Ascension (J2000)
161-169	F9.4	<a href="#">deg</a>	DEBdeg	BCG position in Declination (J2000)
171-176	F6.4	<a href="#">Mpc</a>	PDistBCG	Projected Physical Distance to BCG
178-184	F7.3	<a href="#">mag</a>	F225WPZ	?=99 F225W/WFC3 restricted magnitude (AB); best for photo-z (F225W_WFC3_PHOTOZ)
186-194	F9.3	<a href="#">mag</a>	e_F225WPZ	F225W/WFC3 restricted magnitude uncertainty (AB); best for photo-z (e_F225W_WFC3_PHOTOZ)
196-201	F6.3	<a href="#">mag</a>	F225WM	?=99 F225W/WFC3 moderated magnitude (AB); best for stellar mass (F225W_WFC3_MASS)
203-210	F8.3	<a href="#">mag</a>	e_F225WM	F225W/WFC3 moderated magnitude uncertainty (AB) best for stellar mass (e_F225W_WFC3_MASS)
212-217	F6.3	<a href="#">mag</a>	F275WPZ	?=99 F275W/WFC3 restricted magnitude (AB); best for photo-z (F275W_WFC3_PHOTOZ)
219-226	F8.3	<a href="#">mag</a>	e_F275WPZ	F275W/WFC3 restricted magnitude uncertainty (AB); best for photo-z (e_F275W_WFC3_PHOTOZ)
228-233	F6.3	<a href="#">mag</a>	F275WM	?=99 F275W/WFC3 moderated magnitude (AB); best for stellar mass (F275W_WFC3_MASS)
235-242	F8.3	<a href="#">mag</a>	e_F275WM	F275W/WFC3 moderated magnitude uncertainty (AB) best for stellar mass (e_F275W_WFC3_MASS)
244-249	F6.3	<a href="#">mag</a>	F336WPZ	?=99 F336W/WFC3 restricted magnitude (AB); best for photo-z (F336W_WFC3_PHOTOZ)
251-259	F9.3	<a href="#">mag</a>	e_F336WPZ	F336W/WFC3 restricted magnitude uncertainty (AB); best for photo-z (e_F336W_WFC3_PHOTOZ)
261-266	F6.3	<a href="#">mag</a>	F336WM	?=99 F336W/WFC3 moderated magnitude (AB); best for stellar mass (F336W_WFC3_MASS)
268-276	F9.3	<a href="#">mag</a>	e_F336WM	F336W/WFC3 moderated magnitude uncertainty (AB) best for stellar mass (e_F336W_WFC3_MASS)
278-283	F6.3	<a href="#">mag</a>	F390WPZ	?=99 F390W/WFC3 restricted magnitude (AB); best for photo-z (F390W_WFC3_PHOTOZ)
285-293	F9.3	<a href="#">mag</a>	e_F390WPZ	F390W/WFC3 restricted magnitude uncertainty (AB); best for photo-z (e_F390W_WFC3_PHOTOZ)
295-300	F6.3	<a href="#">mag</a>	F390WM	?=99 F390W/WFC3 moderated magnitude (AB);

				best for stellar mass (F390W <sub>WFC3</sub> MASS)
302-311	F10.3	<a href="#">mag</a>	e_F390WM	F390W/WFC3 moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F390W</sub> WFC3_MASS)
313-318	F6.3	<a href="#">mag</a>	F435WPZ	?=99 F435W/ACS restricted magnitude (AB) best for photo-z (F435W <sub>ACS</sub> PHOTOZ)
320-328	F9.3	<a href="#">mag</a>	e_F435WPZ	F435W/ACS restricted magnitude uncertainty (AB) best for photo-z (e <sub>F435W</sub> ACS_PHOTOZ)
330-335	F6.3	<a href="#">mag</a>	F435WM	?=99 F435W/ACS moderated magnitude (AB) best for stellar mass (F435W <sub>ACS</sub> MASS)
337-345	F9.3	<a href="#">mag</a>	e_F435WM	F435W/ACS moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F435W</sub> ACS_MASS)
347-352	F6.3	<a href="#">mag</a>	F475WPZ	?=99 F475W/ACS restricted magnitude (AB) best for photo-z (F475W <sub>ACS</sub> PHOTOZ)
354-362	F9.3	<a href="#">mag</a>	e_F475WPZ	F475W/ACS restricted magnitude uncertainty (AB) best for photo-z (e <sub>F475W</sub> ACS_PHOTOZ)
364-369	F6.3	<a href="#">mag</a>	F475WM	?=99 F475W/ACS moderated magnitude (AB) best for stellar mass (F475W <sub>ACS</sub> MASS)
371-378	F8.3	<a href="#">mag</a>	e_F475WM	F475W/ACS moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F475W</sub> ACS_MASS)
380-385	F6.3	<a href="#">mag</a>	F606WPZ	?=99 F606W/ACS restricted magnitude (AB) best for photo-z (F606W <sub>ACS</sub> PHOTOZ)
387-395	F9.3	<a href="#">mag</a>	e_F606WPZ	F606W/ACS restricted magnitude uncertainty (AB) best for photo-z (e <sub>F606W</sub> ACS_PHOTOZ)
397-402	F6.3	<a href="#">mag</a>	F606WM	?=99 F606W/ACS moderated magnitude (AB) best for stellar mass (F606W <sub>ACS</sub> MASS)
404-411	F8.3	<a href="#">mag</a>	e_F606WM	F606W/ACS moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F606W</sub> ACS_MASS)
413-418	F6.3	<a href="#">mag</a>	F625WPZ	?=99 F625W/ACS restricted magnitude (AB) best for photo-z (F625W <sub>ACS</sub> PHOTOZ)
420-428	F9.3	<a href="#">mag</a>	e_F625WPZ	F625W/ACS restricted magnitude uncertainty (AB) best for photo-z (e <sub>F625W</sub> ACS_PHOTOZ)
430-435	F6.3	<a href="#">mag</a>	F625WM	?=99 F625W/ACS moderated magnitude (AB) best for stellar mass (F625W <sub>ACS</sub> MASS)
437-445	F9.3	<a href="#">mag</a>	e_F625WM	F625W/ACS moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F625W</sub> ACS_MASS)
447-452	F6.3	<a href="#">mag</a>	F775WPZ	?=99 F775W/ACS restricted magnitude (AB) best for photo-z (F775W <sub>ACS</sub> PHOTOZ)
454-462	F9.3	<a href="#">mag</a>	e_F775WPZ	F775W/ACS restricted magnitude uncertainty (AB) best for photo-z (e <sub>F775W</sub> ACS_PHOTOZ)
464-469	F6.3	<a href="#">mag</a>	F775WM	?=99 F775W/ACS moderated magnitude (AB) best for stellar mass (F775W <sub>ACS</sub> MASS)
471-478	F8.3	<a href="#">mag</a>	e_F775WM	F775W/ACS moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F775W</sub> ACS_MASS)
480-485	F6.3	<a href="#">mag</a>	F814WPZ	?=99 F814W/ACS restricted magnitude (AB) best for photo-z (F814W <sub>ACS</sub> PHOTOZ)
487-495	F9.3	<a href="#">mag</a>	e_F814WPZ	F814W/ACS restricted magnitude uncertainty (AB) best for photo-z (e <sub>F814W</sub> ACS_PHOTOZ)
497-502	F6.3	<a href="#">mag</a>	F814WM	?=99 F814W/ACS moderated magnitude (AB) best for stellar mass (F814W <sub>ACS</sub> MASS)
504-512	F9.3	<a href="#">mag</a>	e_F814WM	F814W/ACS moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F814W</sub> ACS_MASS)
514-519	F6.3	<a href="#">mag</a>	F850LPPZ	?=99 F850LP/ACS restricted magnitude (AB) best for photo-z (F850LP <sub>ACS</sub> PHOTOZ)
521-528	F8.3	<a href="#">mag</a>	e_F850LPPZ	F850LP/ACS restricted magnitude uncertainty (AB) best for photo-z (e <sub>F850LP</sub> ACS_PHOTOZ)
530-535	F6.3	<a href="#">mag</a>	F850LPM	?=99 F850LP/ACS moderated magnitude (AB) best for stellar mass (F850LP <sub>ACS</sub> MASS)
537-544	F8.3	<a href="#">mag</a>	e_F850LPM	F850LP/ACS moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F850LP</sub> ACS_MASS)
546-551	F6.3	<a href="#">mag</a>	F105WPZ	?=99 F105W/WFC3 restricted magnitude (AB) best for photo-z (F105W <sub>WFC3</sub> PHOTOZ)
553-560	F8.3	<a href="#">mag</a>	e_F105WPZ	F105W/WFC3 restricted magnitude uncertainty (AB) best for photo-z (e <sub>F105W</sub> WFC3_PHOTOZ)
562-567	F6.3	<a href="#">mag</a>	F105WM	?=99 F105W/WFC3 moderated magnitude (AB) best for stellar mass (F105W <sub>WFC3</sub> MASS)
569-575	F7.3	<a href="#">mag</a>	e_F105WM	F105W/WFC3 moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F105W</sub> WFC3_MASS)
577-582	F6.3	<a href="#">mag</a>	F110WPZ	?=99 F110W/WFC3 restricted magnitude (AB) best for photo-z (F110W <sub>WFC3</sub> PHOTOZ)
584-590	F7.3	<a href="#">mag</a>	e_F110WPZ	F110W/WFC3 restricted magnitude uncertainty (AB) best for photo-z (e <sub>F110W</sub> WFC3_PHOTOZ)
592-597	F6.3	<a href="#">mag</a>	F110WM	?=99 F110W/WFC3 moderated magnitude (AB) best for stellar mass (F110W <sub>WFC3</sub> MASS)
599-605	F7.3	<a href="#">mag</a>	e_F110WM	F110W/WFC3 moderated magnitude uncertainty (AB) best for stellar mass (e <sub>F110W</sub> WFC3_MASS)
607-612	F6.3	<a href="#">mag</a>	F125WPZ	?=99 F125W/WFC3 restricted magnitude (AB) best for photo-z (F125W <sub>WFC3</sub> PHOTOZ)
614-622	F9.3	<a href="#">mag</a>	e_F125WPZ	F125W/WFC3 restricted magnitude uncertainty (AB) best for photo-z (e <sub>F125W</sub> WFC3_PHOTOZ)
624-629	F6.3	<a href="#">mag</a>	F125WM	?=99 F125W/WFC3 moderated magnitude (AB) best for stellar mass (F125W <sub>WFC3</sub> MASS)
631-639	F9.3	<a href="#">mag</a>	e_F125WM	F125W/WFC3 moderated magnitude uncertainty (AB)

