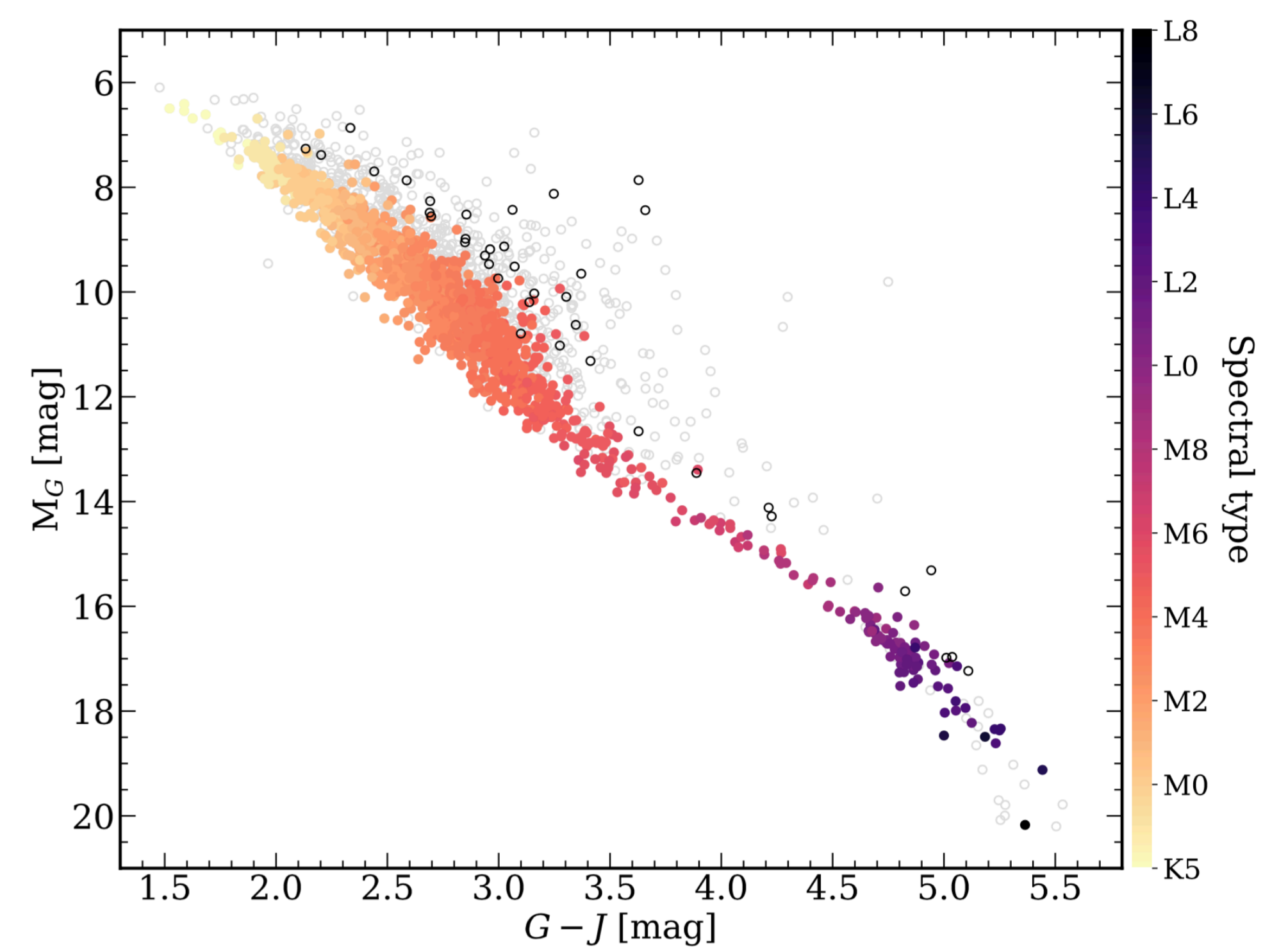
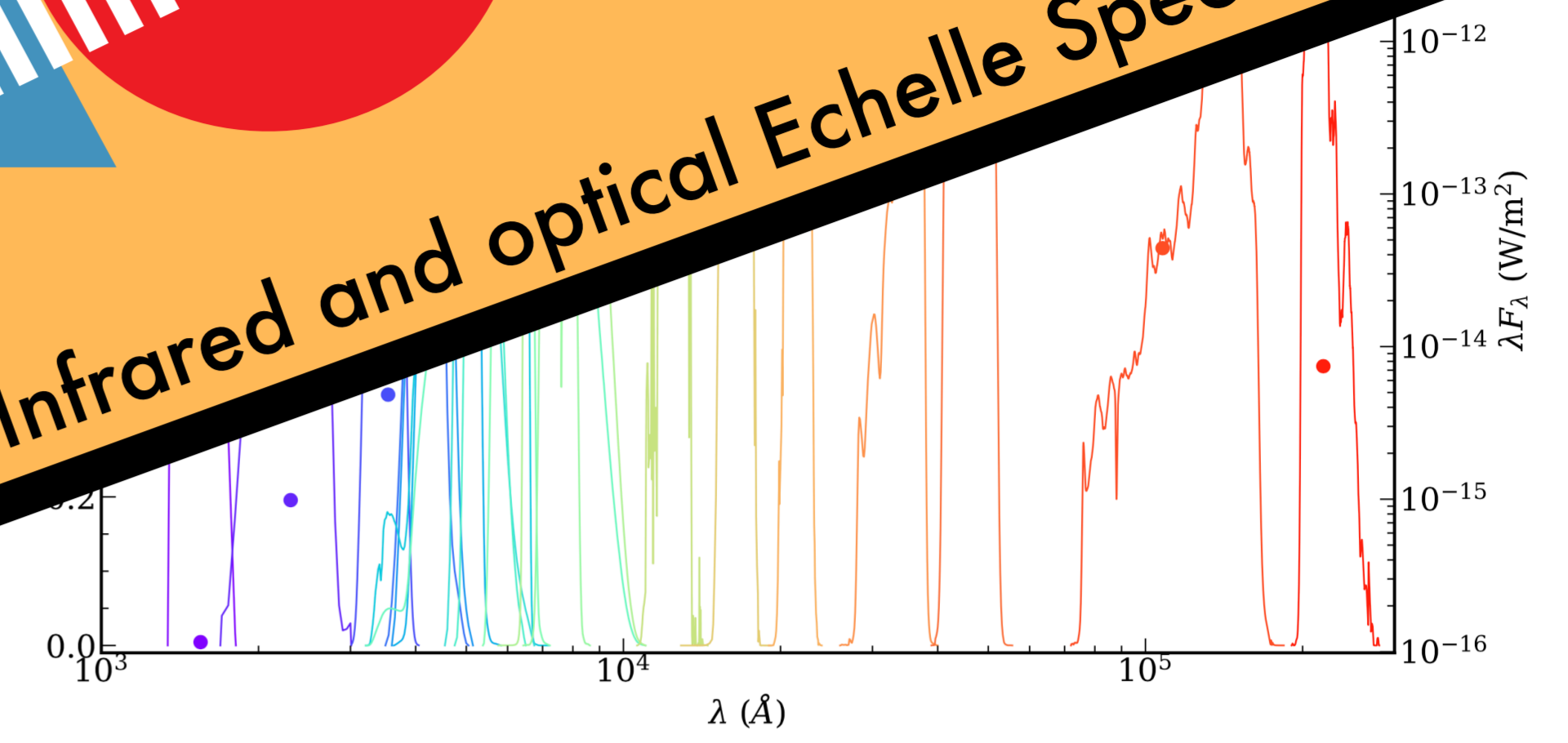


Luminosities, colours, and SEDs of M dwarfs in the CARMENES catalogue

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with Near-Infrared and optical Echelle Spectrographs



>350 M dwarfs monitored
 >30 exoplanets confirmed

Calar Alto high-Resolution search for M dwarfs with Exo-Earths

Once the flux of a star in multiple passbands (from UV to mid-IR) is known, one can produce a low-resolution spectrum or spectral energy distribution (SED) and derive the bolometric luminosity from it. We did this on almost 2500 cool stars. We determined the average values of very important astrophysical parameters, including absolute magnitudes, temperatures, masses or radii.

Spectral type	BC_G (mag)	BC_J (mag)	L ($10^{-4}L_{\odot}$)	T_{eff} (K)	R (R_{\odot})	M (M_{\odot})
K5 V	-0.206 ± 0.065	1.490 ± 0.047	1800 ± 420	4400 ± 180	0.693 ± 0.054	0.707
K7 V	-0.393 ± 0.046	1.615 ± 0.027	960 ± 210	4050 ± 100	0.635 ± 0.046	0.635
M0.0 V	-0.469 ± 0.082	1.654 ± 0.042	757 ± 230	3900 ± 140	0.613 ± 0.060	0.613
M0.5 V	-0.570 ± 0.067	1.690 ± 0.038	585 ± 210	3800 ± 110	0.571 ± 0.077	0.571
M1.0 V	-0.605 ± 0.054	1.719 ± 0.033	496 ± 150	3700 ± 85	0.550 ± 0.084	0.550
M1.5 V	-0.664 ± 0.066	1.741 ± 0.037	409 ± 160	3600 ± 90	0.519 ± 0.091	0.519
M2.0 V	-0.746 ± 0.077	1.769 ± 0.035	306 ± 130	3500 ± 105	0.488 ± 0.098	0.488
M2.5 V	-0.825 ± 0.082	1.796 ± 0.034	228 ± 96	3400 ± 97	0.457 ± 0.105	0.457
M3.0 V	-0.915 ± 0.085	1.827 ± 0.040	161 ± 74	3300 ± 87	0.426 ± 0.112	0.426
M3.5 V	-0.985 ± 0.096	1.863 ± 0.043	111 ± 57	3300 ± 87	0.395 ± 0.119	0.395
M4.0 V	-1.043 ± 0.093	1.890 ± 0.043	87 ± 47	3200 ± 87	0.364 ± 0.126	0.364
M4.5 V	-1.160 ± 0.103	1.920 ± 0.041	50 ± 27	3200 ± 87	0.333 ± 0.133	0.333
M5.0 V	-1.236 ± 0.122	1.951 ± 0.039	28 ± 13	3200 ± 87	0.302 ± 0.140	0.302
M5.5 V	-1.420 ± 0.116	1.997 ± 0.057	20.1 ± 8	3200 ± 87	0.271 ± 0.147	0.271
M6.0 V	-1.572 ± 0.178	2.062 ± 0.066	11.1 ± 4	3200 ± 87	0.240 ± 0.154	0.240
M6.5 V	-1.837 ± 0.223	2.096 ± 0.065	7.1 ± 3	3200 ± 87	0.209 ± 0.161	0.209
M7.0 V	-1.854 ± 0.129	2.105 ± 0.050	5.1 ± 2	3200 ± 87	0.178 ± 0.168	0.178
M7.5 V	-2.169 ± 0.141	2.078 ± 0.041	3.1 ± 1	3200 ± 87	0.147 ± 0.175	0.147
M8.0 V	-2.192 ± 0.163	2.082 ± 0.032	2.1 ± 1	3200 ± 87	0.116 ± 0.182	0.116
M8.5 V	-2.342 ± 0.169	2.119 ± 0.023	1.1 ± 0.5	3200 ± 87	0.085 ± 0.189	0.085
M9.0 V	-2.520 ± 0.158	2.156 ± 0.014	0.6 ± 0.3	3200 ± 87	0.054 ± 0.196	0.054
M9.5 V	-2.627 ± 0.118	2.193 ± 0.005	0.3 ± 0.1	3200 ± 87	0.023 ± 0.203	0.023
L0.0	-2.648 ± 0.109	2.230 ± 0.006	0.1 ± 0.05	3200 ± 87	0.014 ± 0.210	0.014
L0.5	-2.746 ± 0.100	2.267 ± 0.007	0.05 ± 0.02	3200 ± 87	0.005 ± 0.217	0.005
L1.0	-2.817 ± 0.091	2.304 ± 0.008	0.02 ± 0.01	3200 ± 87	0.002 ± 0.224	0.002
L1.5	-2.888 ± 0.082	2.341 ± 0.009	0.01 ± 0.005	3200 ± 87	0.001 ± 0.231	0.001

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11 institutions (Spain + Germany)



Cifuentes et al. 2020

- 2479 K5 V to L8 stars
- SEDs from 20 passbands
- Luminosities and effective temperatures for 1843 single stars
- 40 new close multiple systems
- 36 overluminous (young?) objects

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