1) General information

Offer to which this application is related: **T80Cam@JAST/T80 Science Commissioning**

Title: **Deep Observations of the Pleiades Open Cluster**

Field of the study: **Stellar physics**

Principal investigator: **Alessandro Ederoclite / CEFCA - Centro de Estudios de Física del Cosmos de Aragón**

Contact person: **Alessandro Ederoclite / CEFCA - Centro de Estudios de Física del Cosmos de Aragón**

Research team:

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Are the results of the observations to be used in a Phd?: **No**

Is this application to continue with another previously approved observation program?: **No**

Do you also need observation time in subsequent semesters?: **No**

Desired type of night: **It does not matter**

Desired worst acceptable seeing interval: **0.9" - 1.2"**

Desired type of transparency: **Thin**

2) Observations

Observation 1

Telescope/camera involved in the observation: **JAST/T80 - T80Cam**

Observation mode: **Queue**

Pointing 1

Name: **M45**

RA (Right Ascension) - J2000.0: **3:47:24**

DEC (Declination) - J2000.0: **24:7:0**

Filter/s involved in the observation:

1.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	F348 / u_J	**227**	**3**	**12.35**

Comment 1:

2.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	F378	**65**	**3**	**4.25**

Comment 2:

3.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	F395	**102**	**3**	**6.1**

Comment 3:

4.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	F410	**40**	**3**	**3**

Comment 4:

5.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	F430	**38**	**3**	**2.9**

Comment 5:

6.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	Sloan-g	**13**	**3**	**1.65**

Comment 6:

7.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	F515	21	3	2.05

Comment 7:

8.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	Sloan-r	21	3	2.05

Comment 8:

9.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	F660	280	3	15

Comment 9:

10.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	Sloan-i	27	3	2.35

Comment 10:

11.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	F861	62	3	4.1

Comment 11:

12.	Filter	Time per exposure (s)	Number exposure	Total time (min)
	Sloan-z	39	3	2.95

Comment 12:

3) Description of the application

Scientific rationale:

The Pleiades is one of the most spectacular naked-eye objects of the night sky.
The closest and brightest open cluster is an ideal laboratory to check how good J-PLUS is to study young stellar populations. Moreover, the Pleiades are known for being surrounded by a nabulosity which could be studied with J-PLUS filters.
Here we propose deep observations to probe both the bright and the faint end of the luminosity function of the cluster and compare with previous studies.
Finally, since the whole cluster nicely fills the detector of T80Cam, it will provide a spectacular press-release image.

Technical description:

We propose observations with different depths (somehow similar to the "high dynamic range" technique in digital photography) in order to have a complete view of the cluster.
Given the brightness of the objects, we do not really need spectacular sky conditions and one snapshot is enough.
We plan to observe for 1/100, 1/10 and the nominal exposure time of J-PLUS (although the exposure times have been adapted for a 1" seeing).

Does the program require special calibrations?: **No**

Is the program expected to lead to a paper?: **No**

Figure 1

Figure 1. The cluster nicely fills the field of view of the telescope
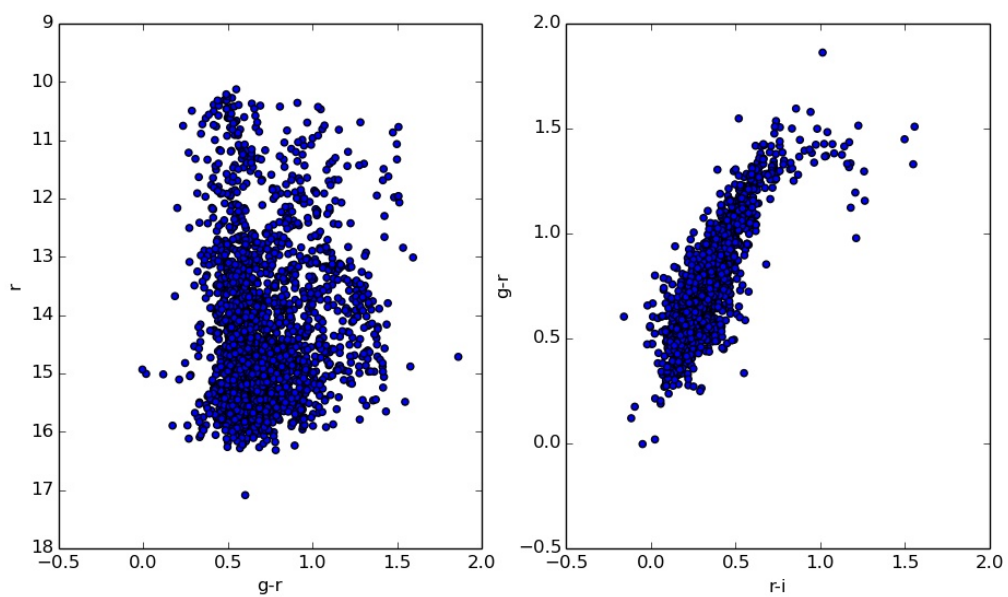
Figure 2

Figure 2. Colour magnitude and colour colour diagrams of the Pleiades region based on APASS photometry.