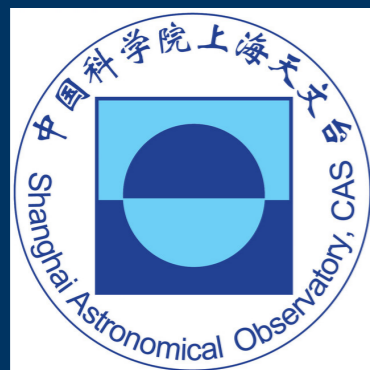


The new detection of blue stragglers in 50 OCs using Gaia DR3

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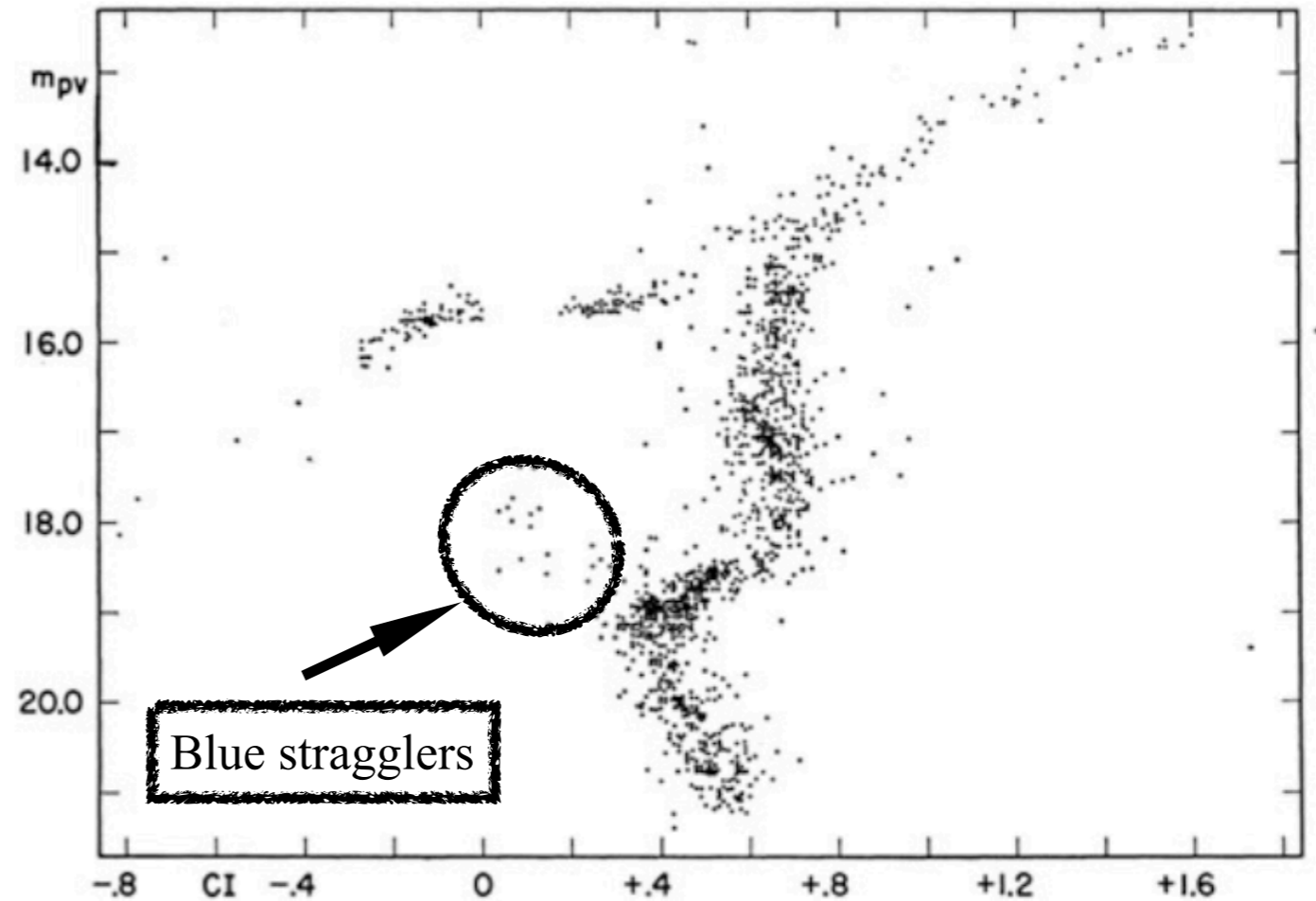
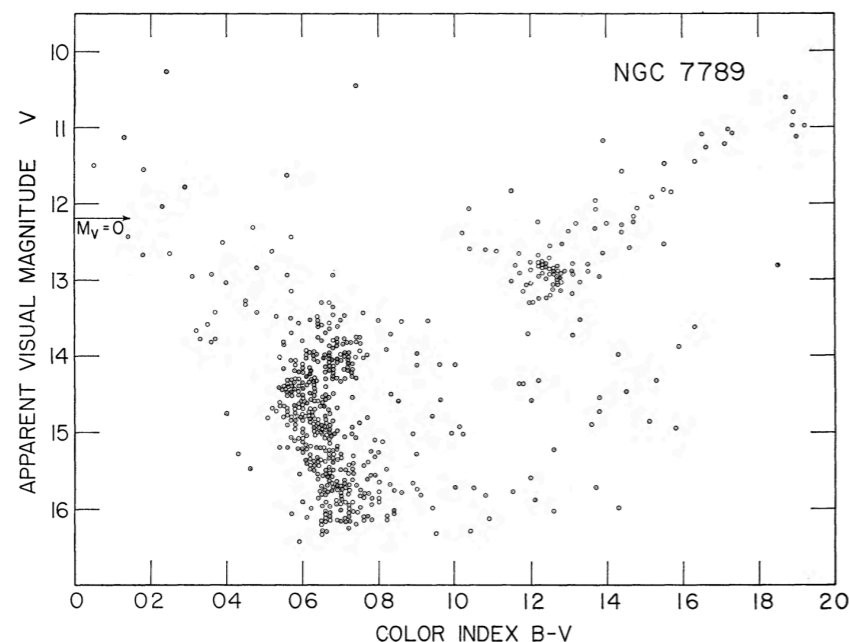
Outlines

- **Background**
- **Data & method**
- **Results**
- **Discussion**
- **Summary & Prospect**

Background

Blue straggler stars(BS)

- Feature: bluer and brighter
- Found: 1953, Sandage, M 3
- Environment :
globular clusters
open clusters



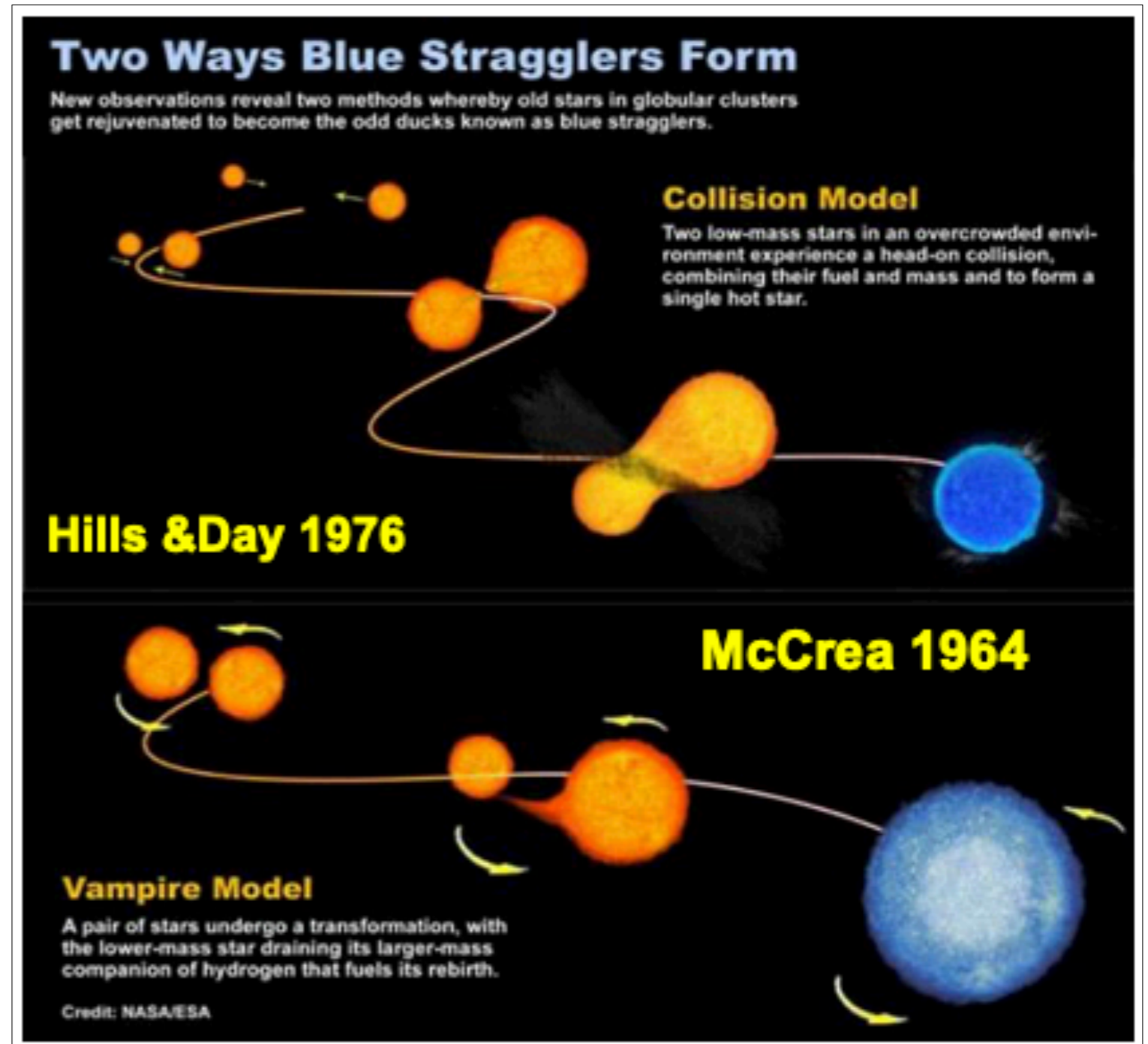
Sandage (1953)

Burbidge & Sandage (1958)

Background

Possible Formation pathway

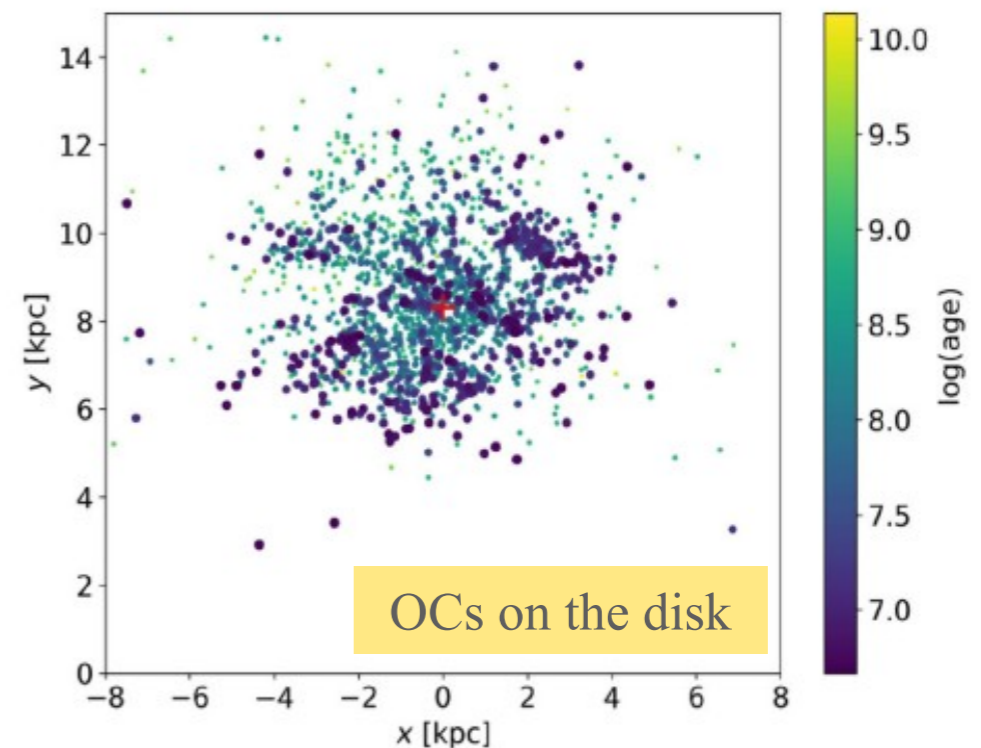
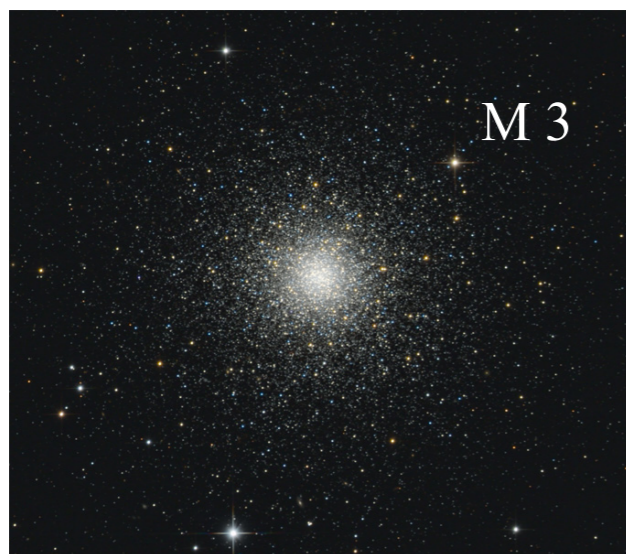
- Vampire Model
mass transfer
- Collision Model
collision and merge



Background

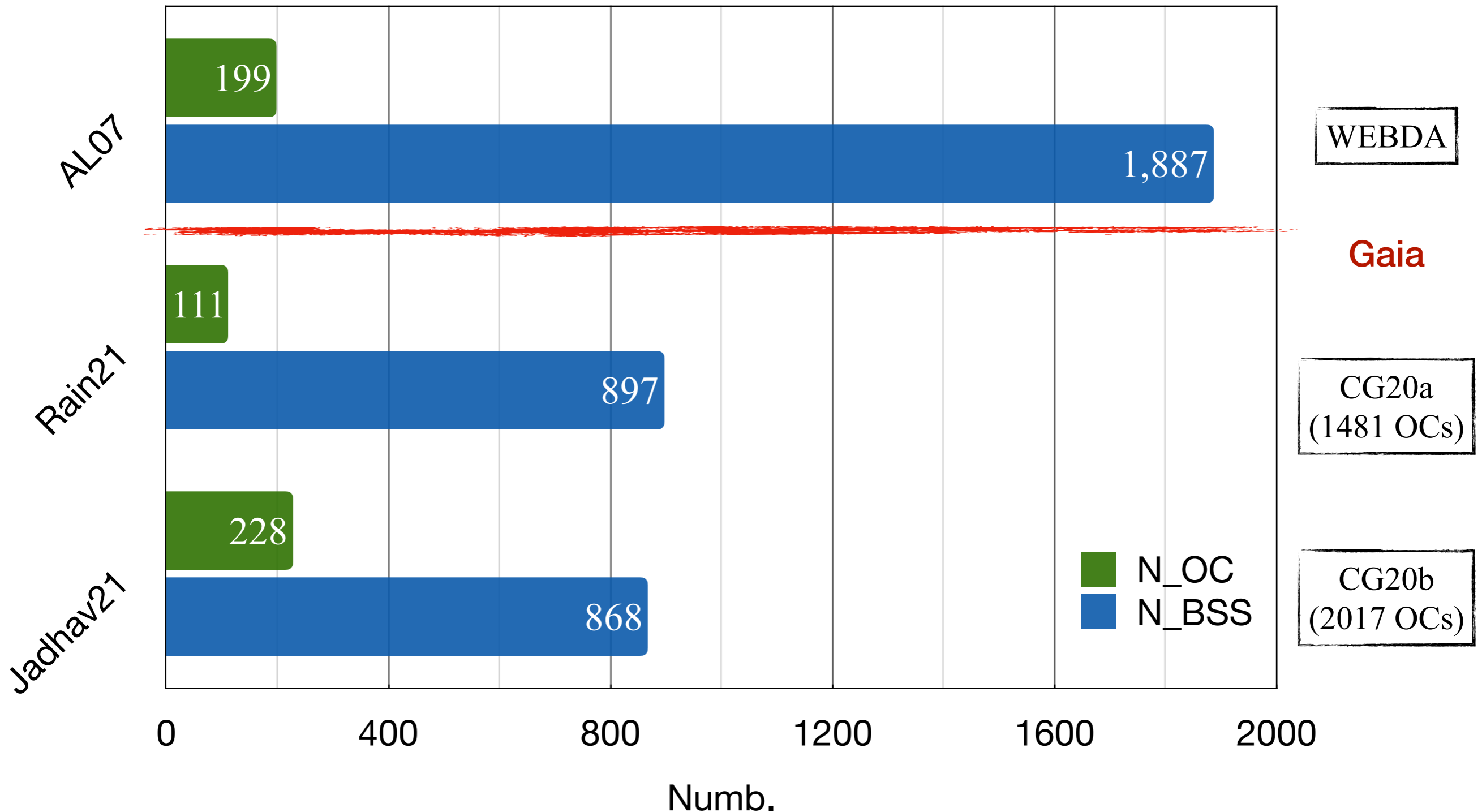
Open clusters(OCs)

- Born from a same cloud
- Same parameters (distance, kinematics, chemical and age)
- Compare with GCs: loose structure
more complete observations



Background

BSs in Open clusters

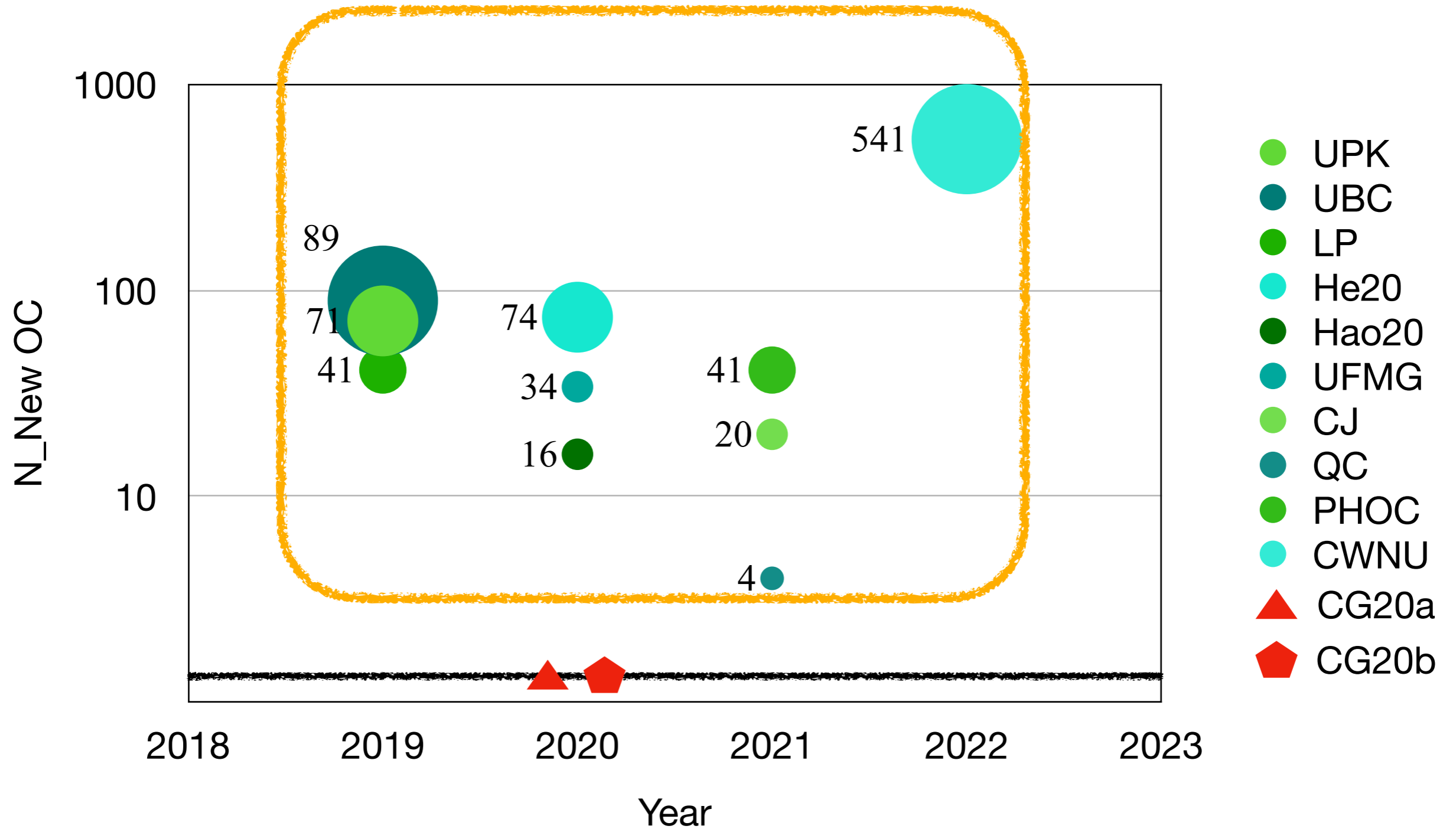


AL07: Ahumada & Lapasset (2007), Rain21: Rain et al. (2021), Jadhav21: Jadhav et al. (2021)
CG20a: Cantat-Gaudin & Anders (2020), CG20b: Cantat-Gaudin et al. (2020)

Background

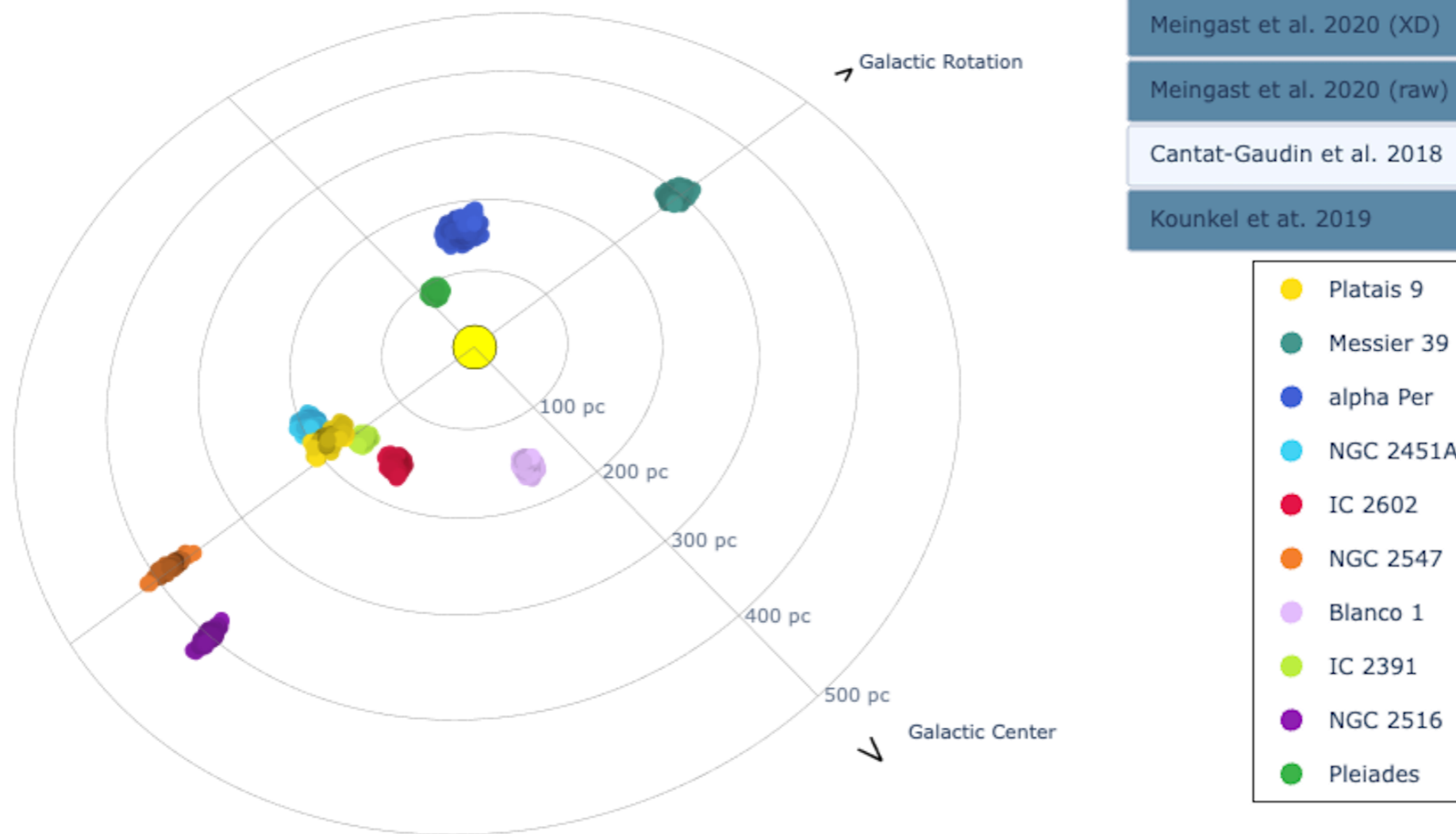
New OCs

~ 1000 new OCs



Background

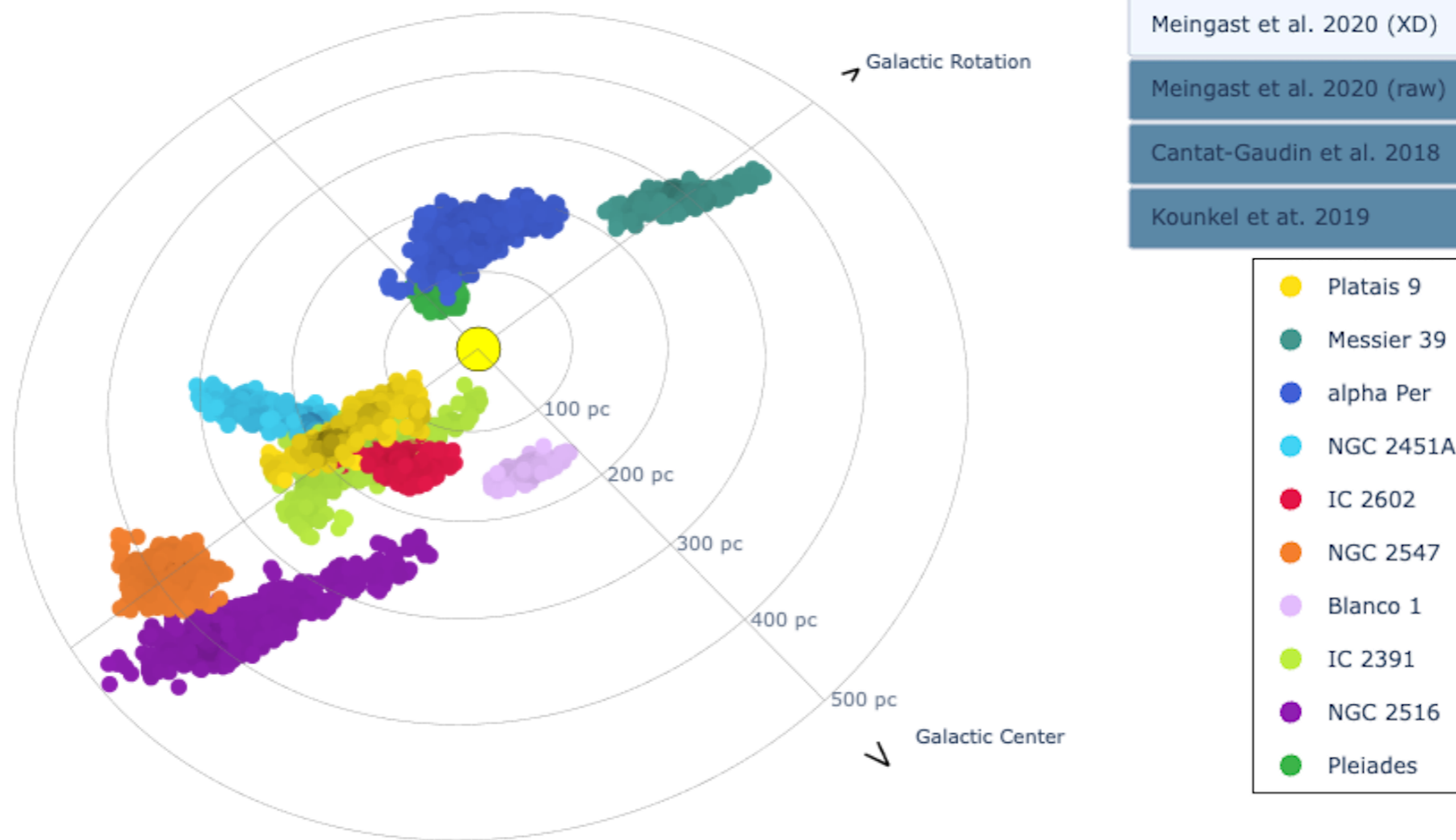
spatial extension



Meingast et al. (2021)

Background

spatial extension



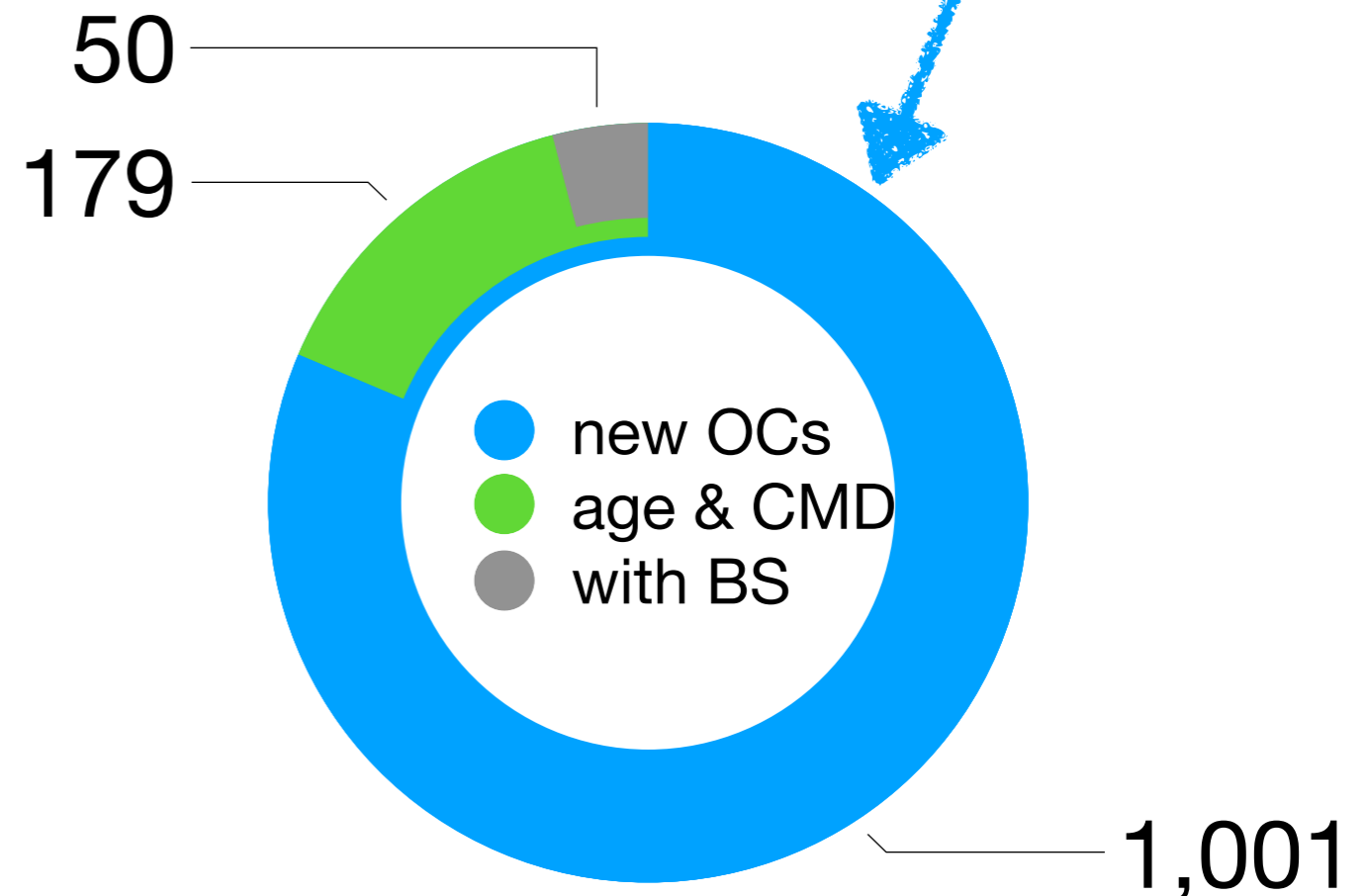
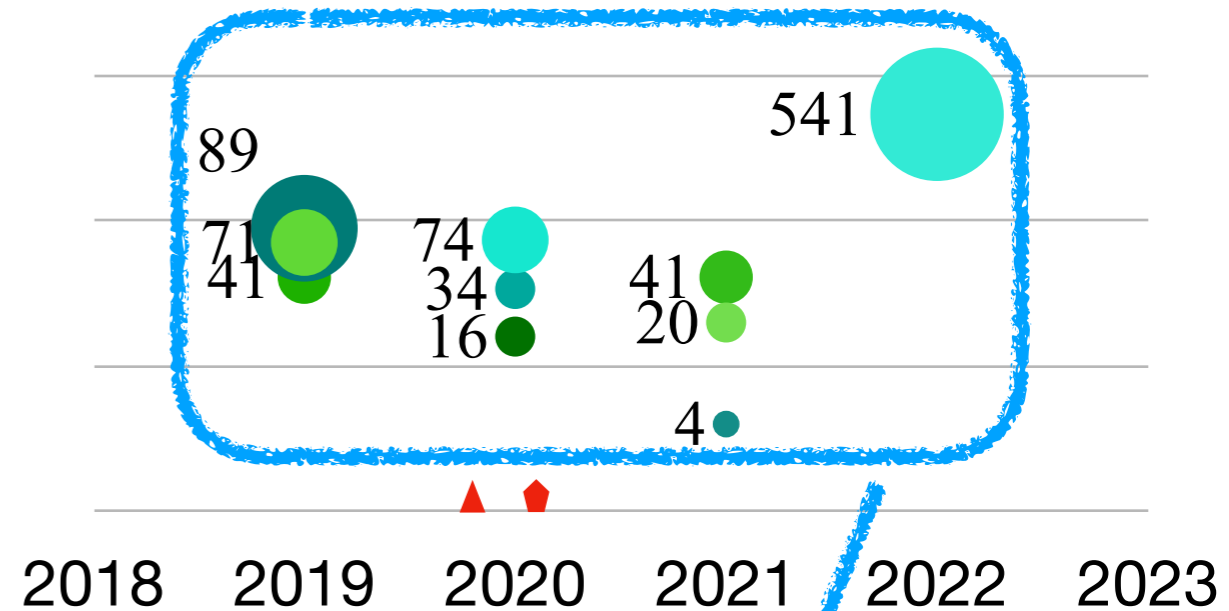
Meingast et al. (2021)

More and more evidence suggests that open clusters have extended outer structures.

Data & method

Data and cluster members

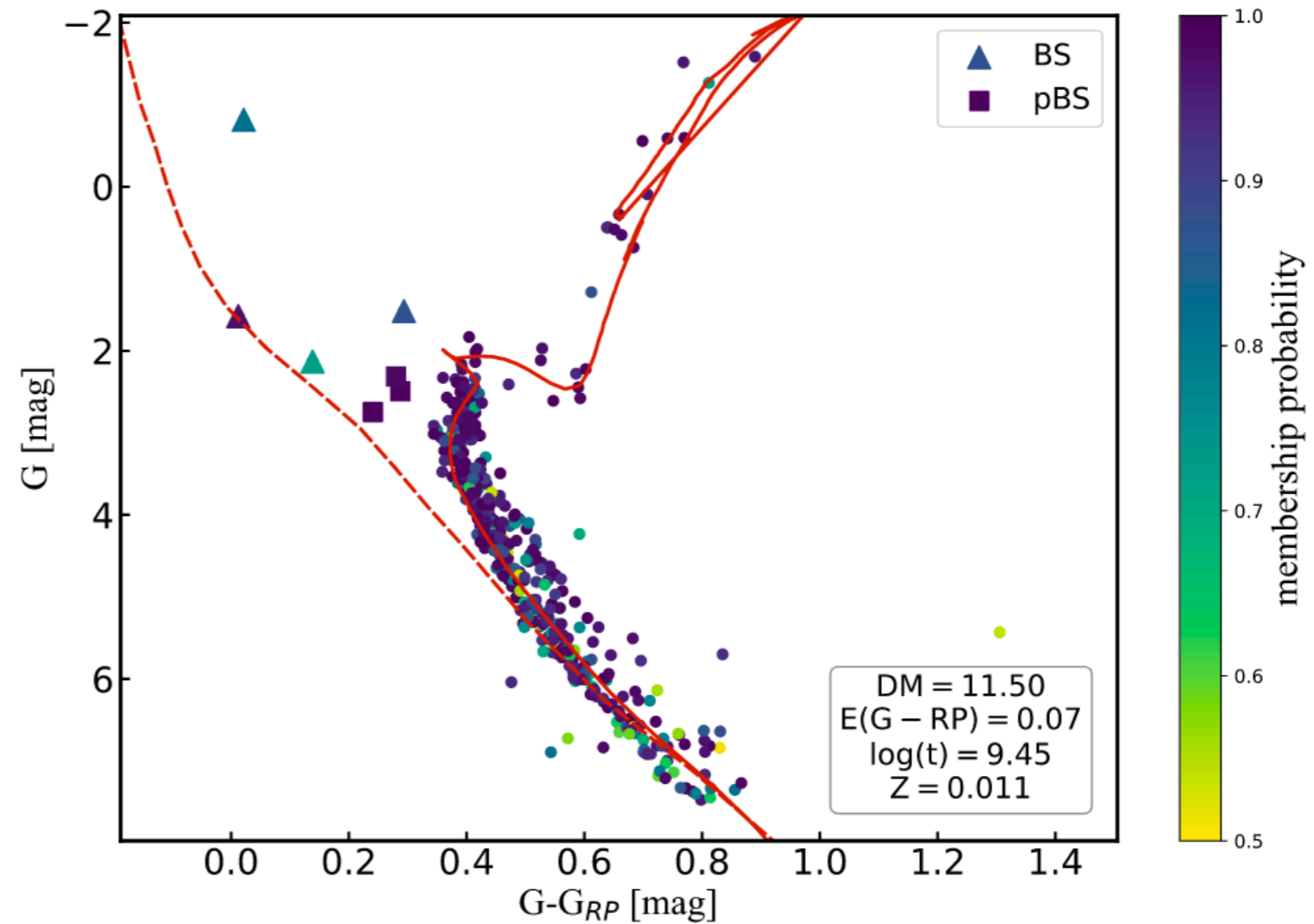
- Gaia DR3
- New OCS:
other than CG20a & CG20b
a larger region
- criteria:
 $\log(\text{age}) > 7$
- Membership probability:
pyUPMASK
5-D parameters



Data & method

Identification of BS

- CMD:
isochrone fit
ZAMS
- BS and pBS:
visual inspection



Results

A&A 672 A81 (2023)

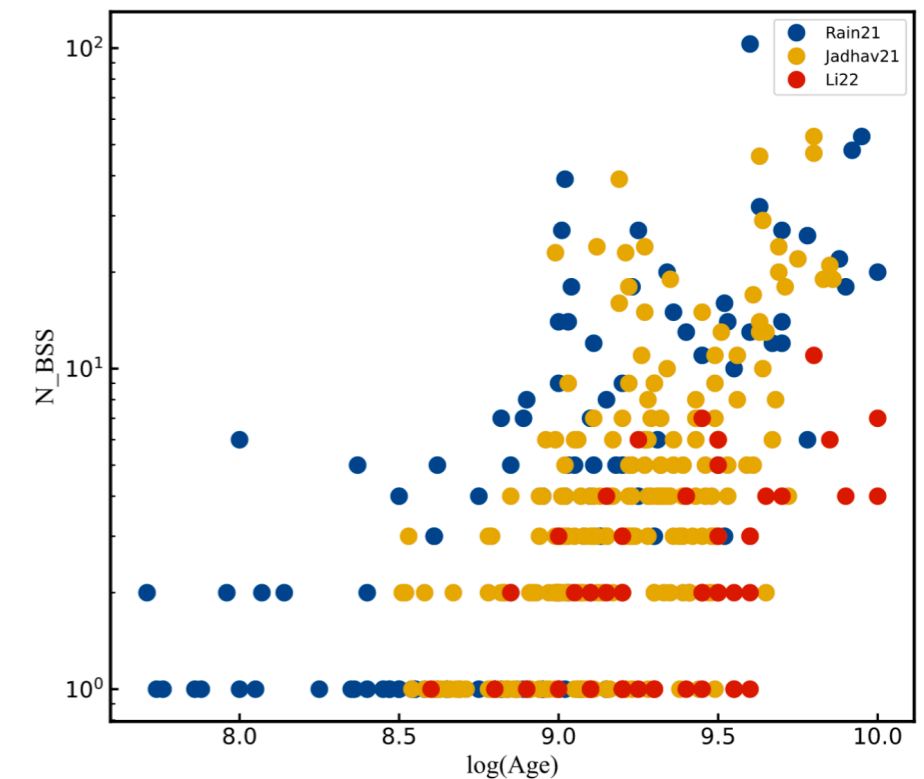
Astronomy
&
Astrophysics

The new detection of blue straggler stars in 50 open clusters using *Gaia* DR3★

Chunyan Li (李春燕)^{1,2} , Jing Zhong (钟靖)¹, Songmei Qin (秦松梅)^{1,2} , and Li Chen (陈力)^{1,2} 

- BS catalog:
138 new BSs, 50 OCs
- Cluster members

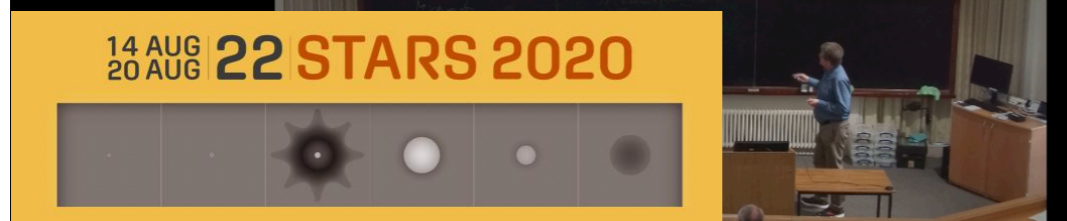
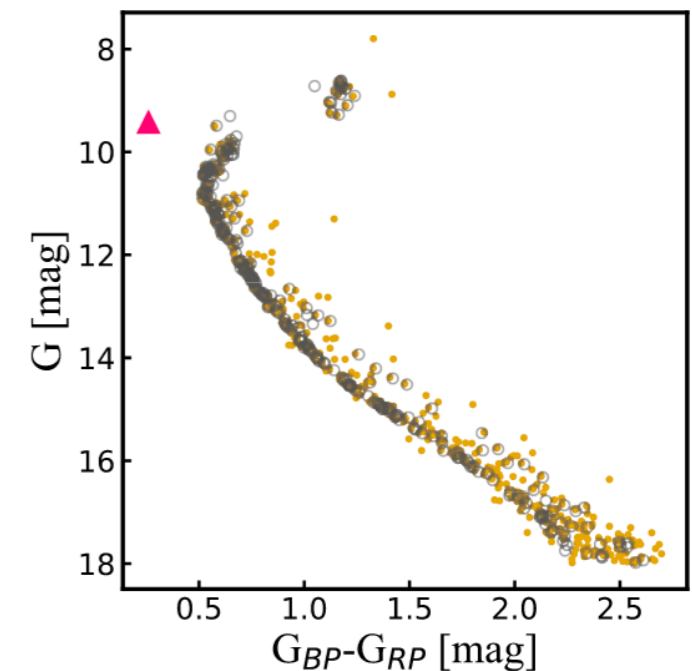
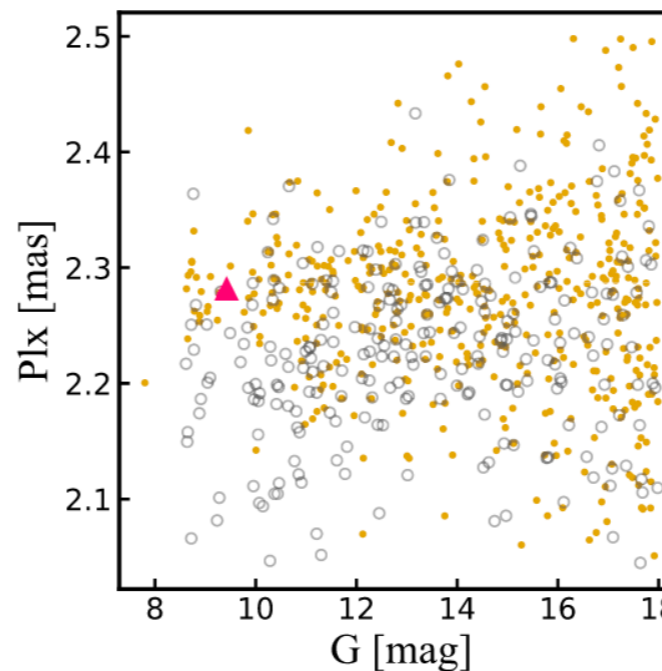
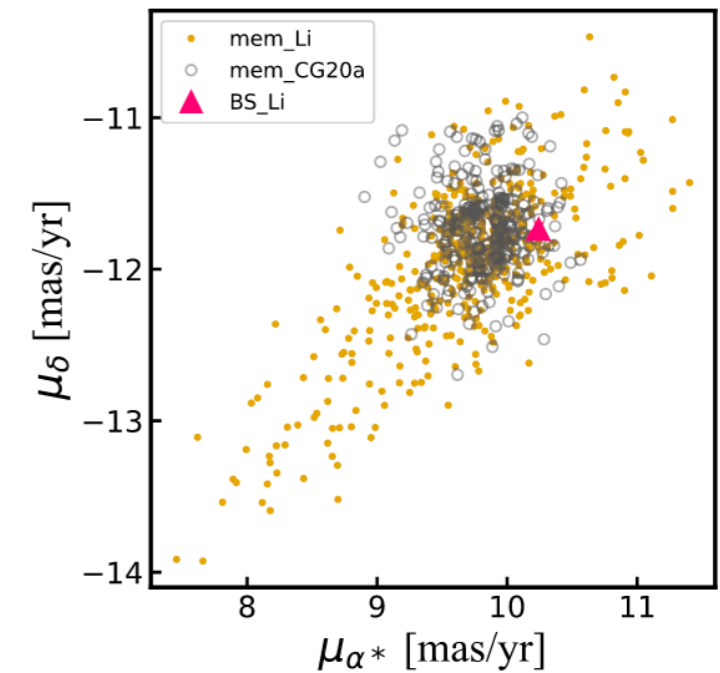
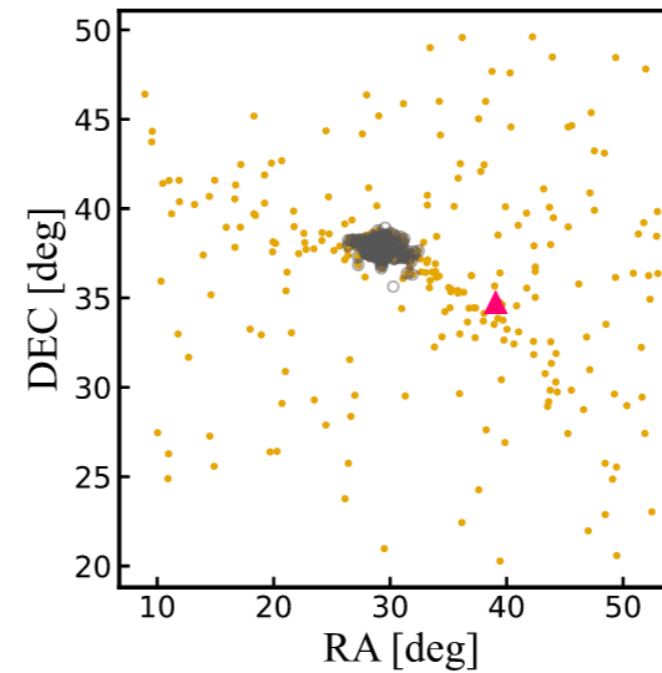
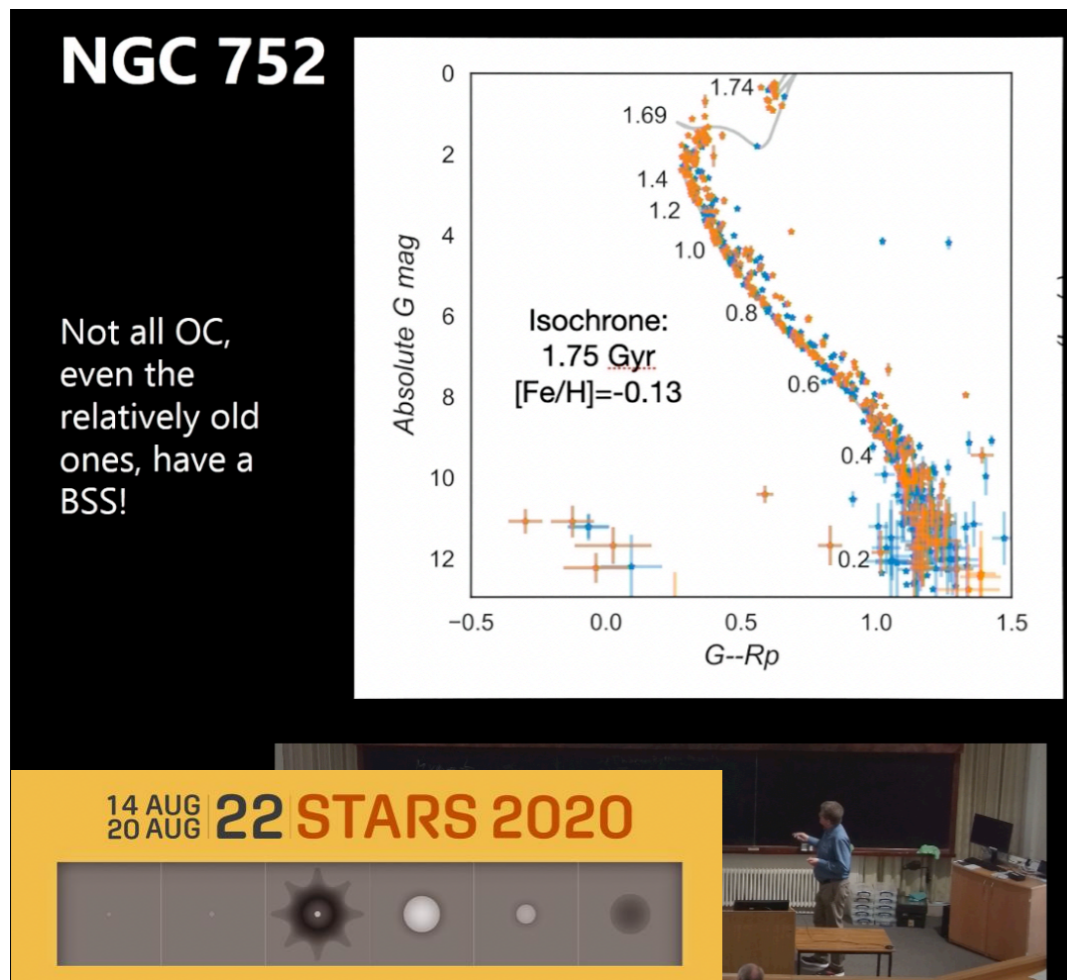
FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
table1.dat	77	50	Parameters of clusters with blue stragglers
table2.dat	128	12499	Parameters of cluster members, including BS, pBS and YSS



Discussion

BS in the outside

- NGC 752
- BS in tidal tails



Boffin

Summary and Prospect

- Homogeneous identification of cluster members
 - Newly detected 138 BSs in 50 OCs
 - Many BSs stay in the out region of OCs
-
- Census of BSs in OCs covering more extended regions
 - Spectral properties of BS

Thank you !

