

Telling star clusters from galaxies in the ultra-compact dwarf regime

Matthias Frank (University of Heidelberg)

Team X-Shooter:

Thomas Puzia

Michael Hilker

Iskren Georgiev

Matt Taylor

Steffen Mieske

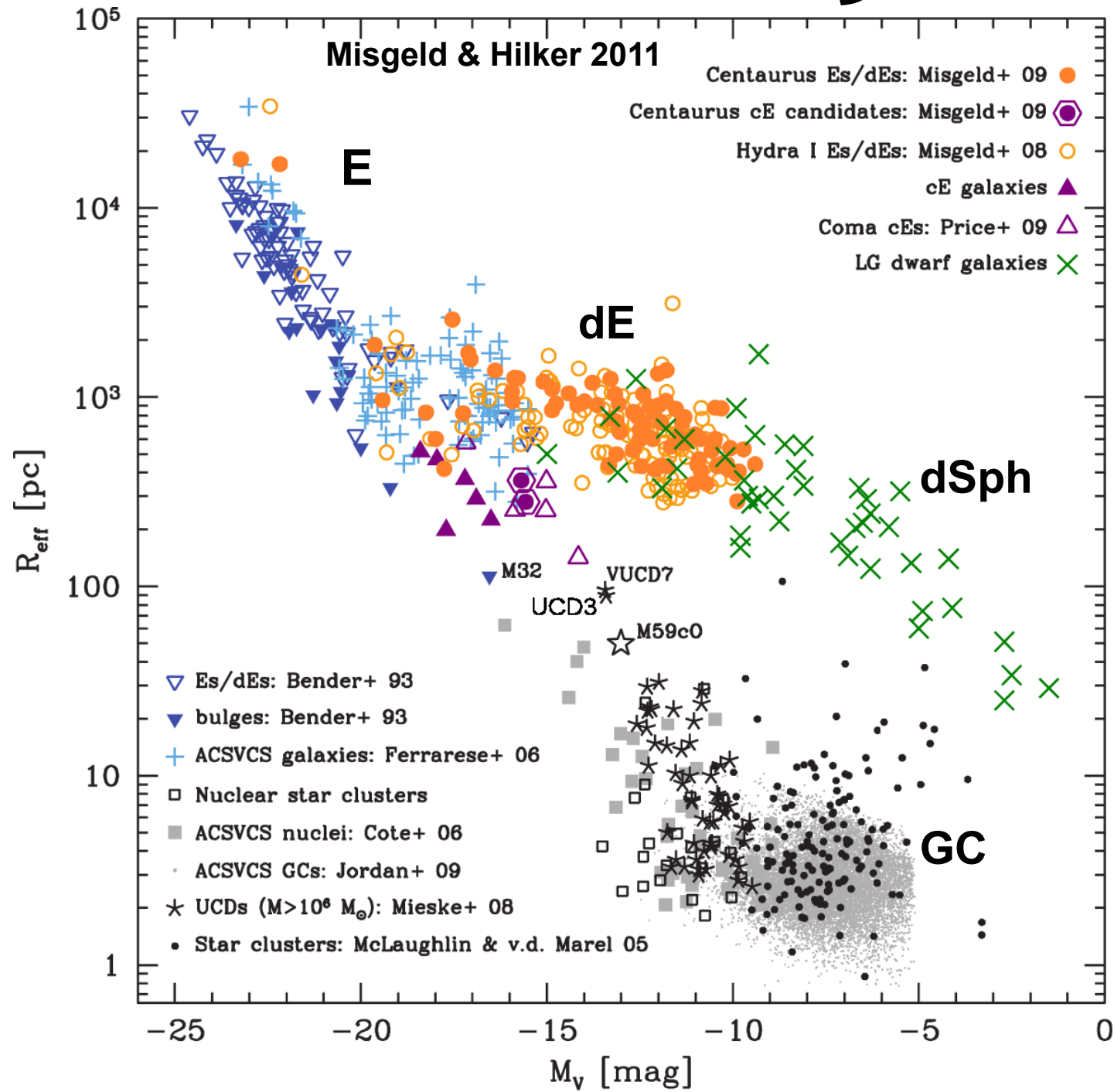
Ingo Misgeld

Team dE,N:

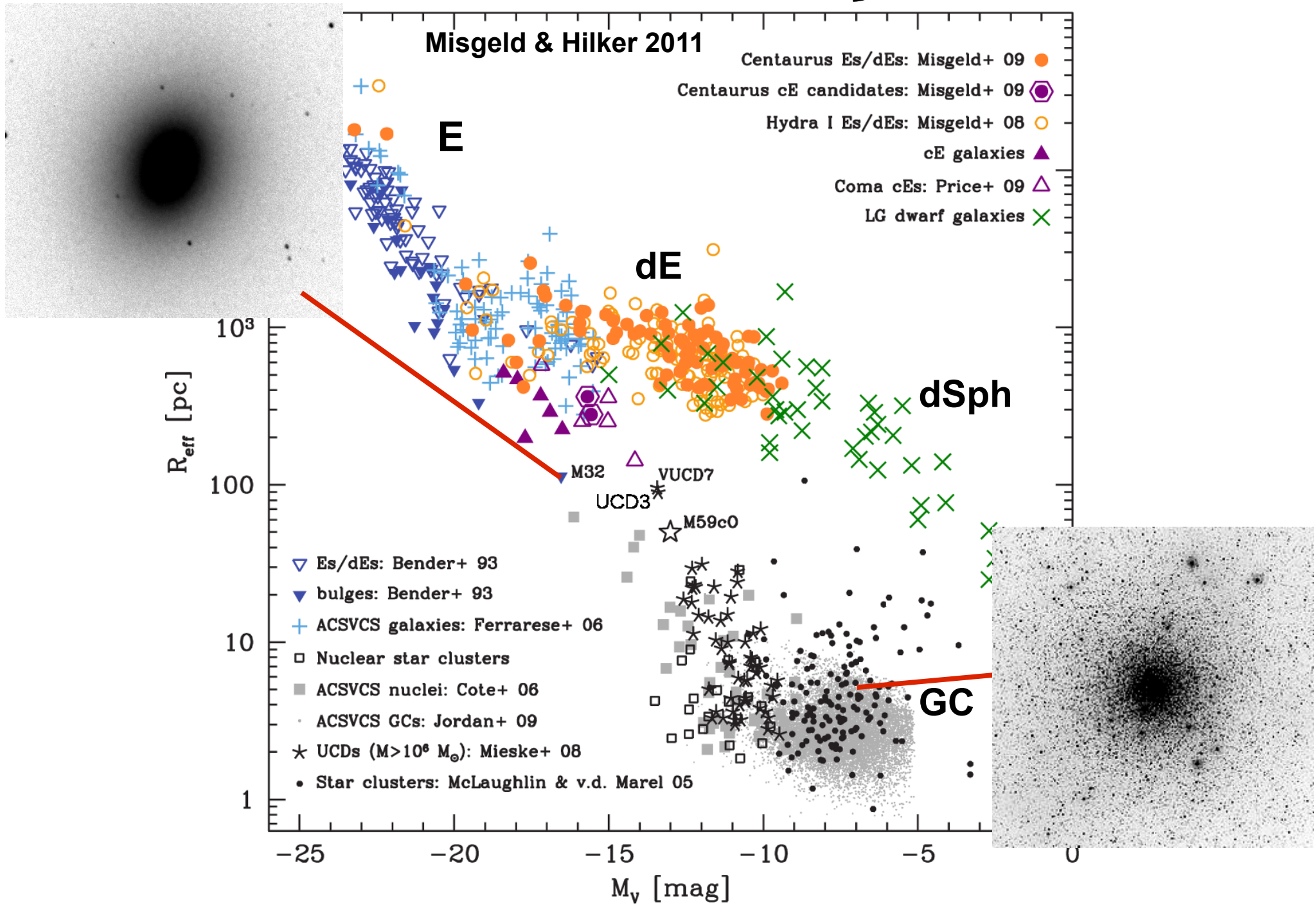
Sanjaya Paudel

Thorsten Lisker

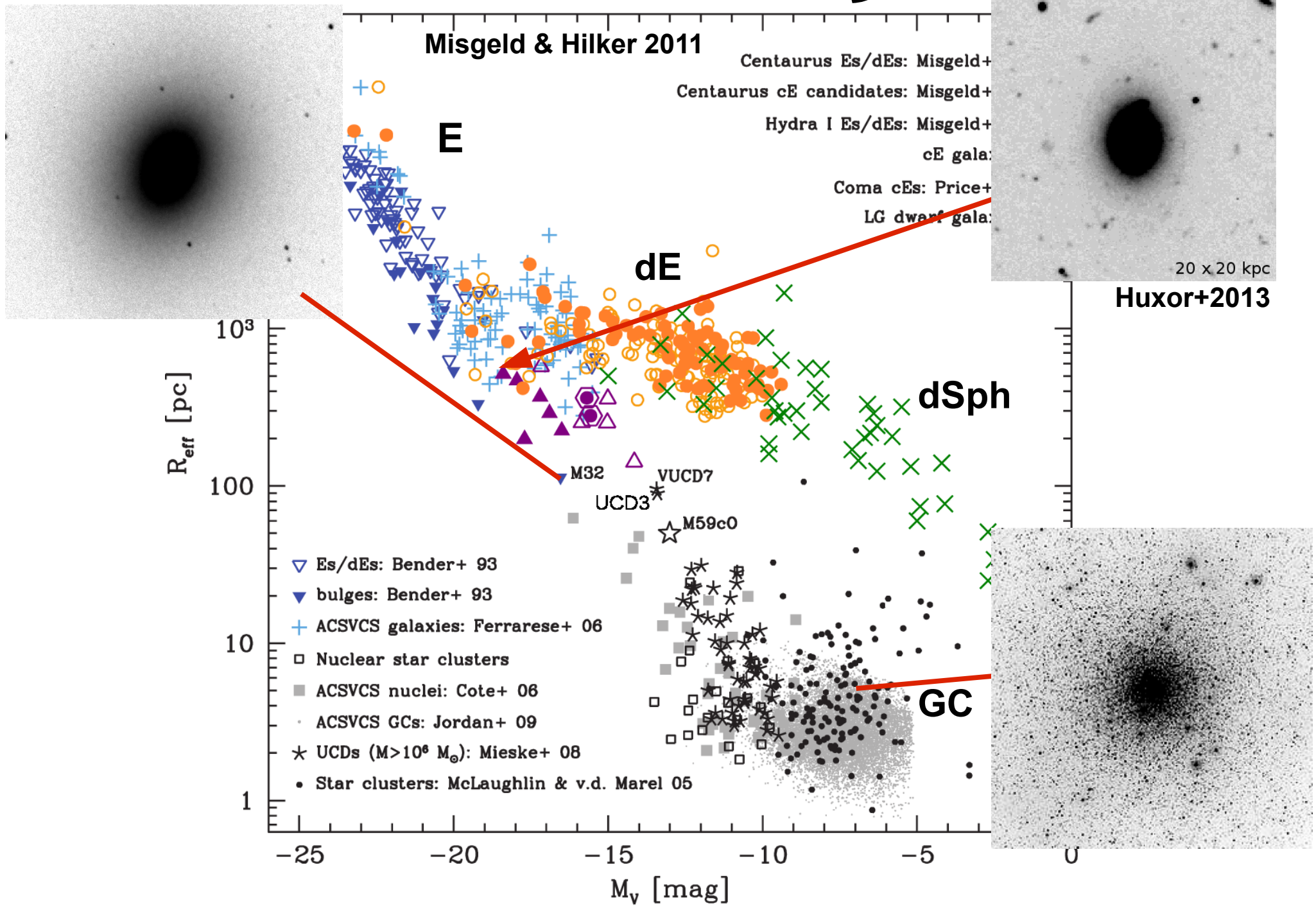
Somewhere between M32 and M4...



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What is a globular cluster?

Globular cluster := something that is
made of Globular cluster stars

Light element variations

Second generation ↑ **N, Na, Al, (K, He?)**
 ↓ **C, O, Mg**

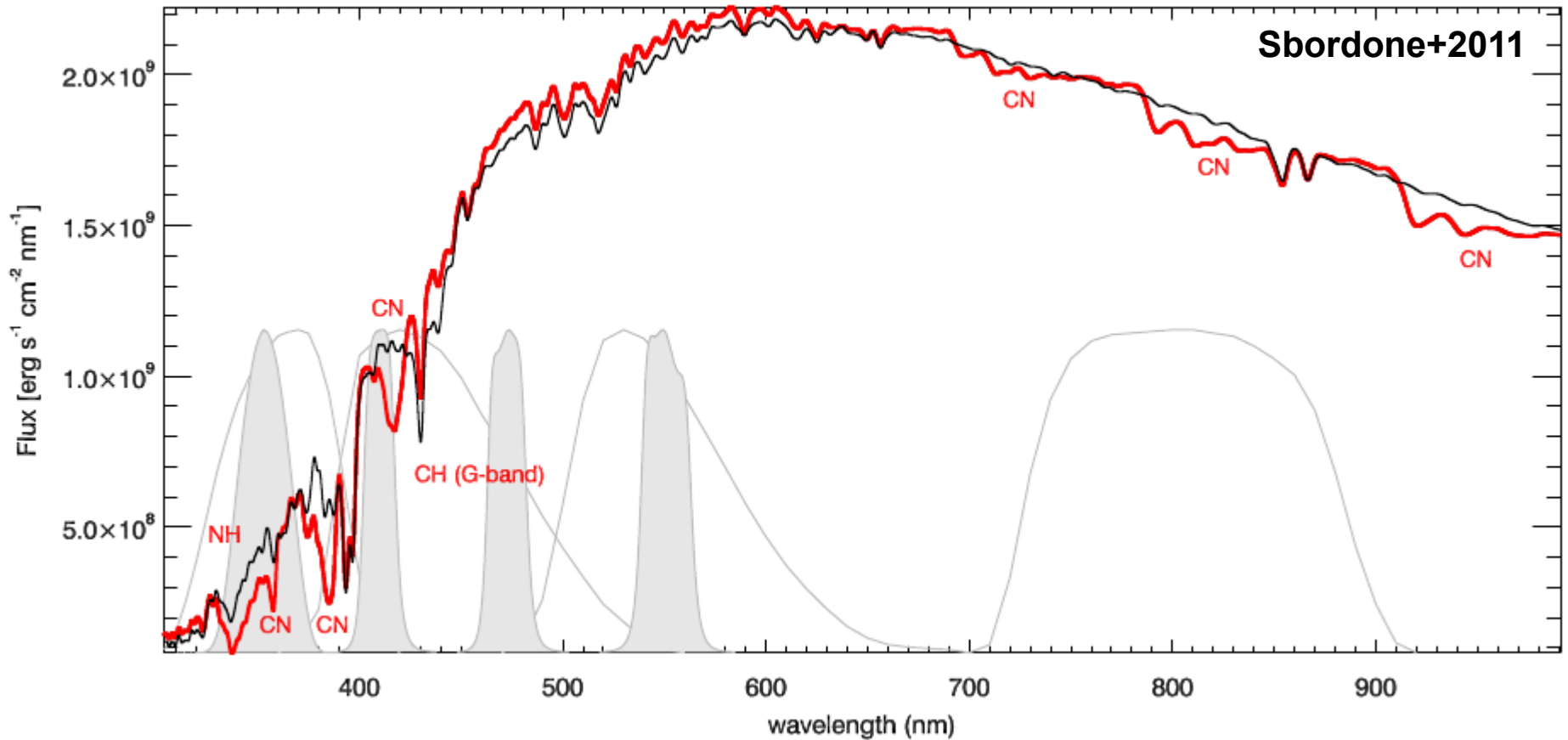
massive AGB stars (Parmentier+1999,...)

rapidly rotating massive stars
(Decressin+2007)

mass-transferring massive binary stars (De
Mink+2009)

Driven by timescale and density, unique to Globular Clusters

Light element variations



Driven by timescale and density, unique to Globular Clusters

Also the suspect stripped nuclei

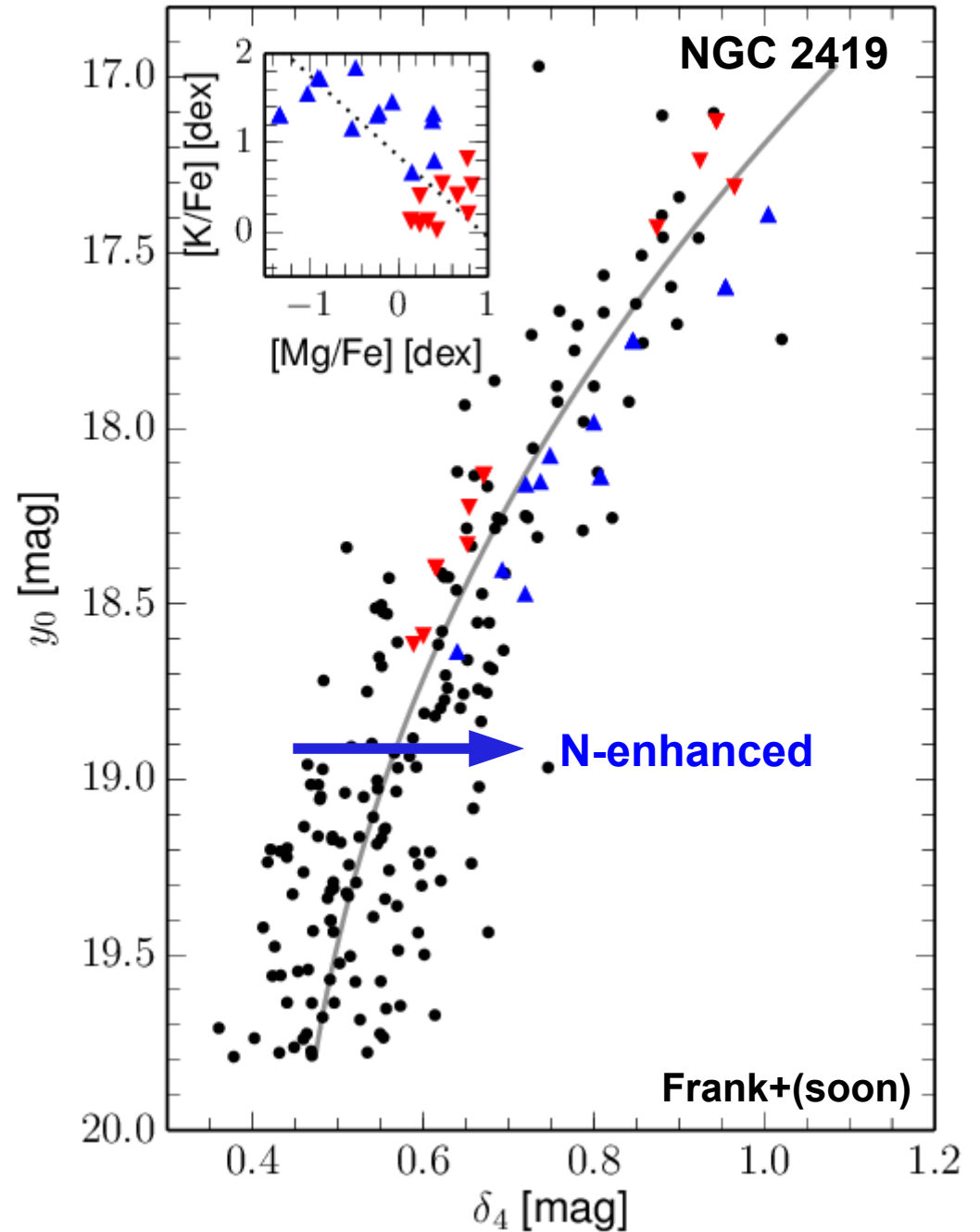
ω Cen (Bell & Dickens 1974)

M54 (Brown+1999)

Also the suspect stripped nuclei

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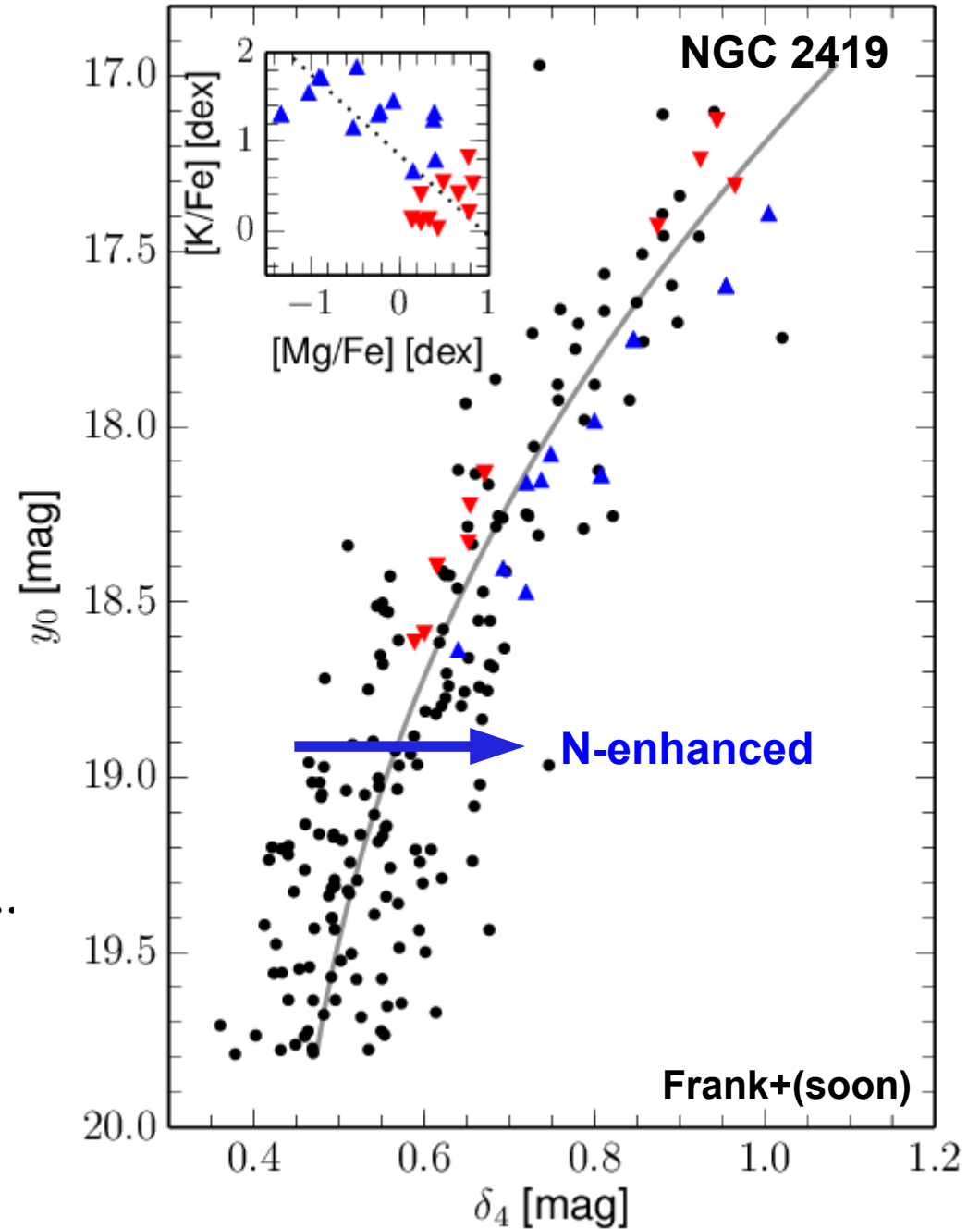


Also the suspect stripped nuclei

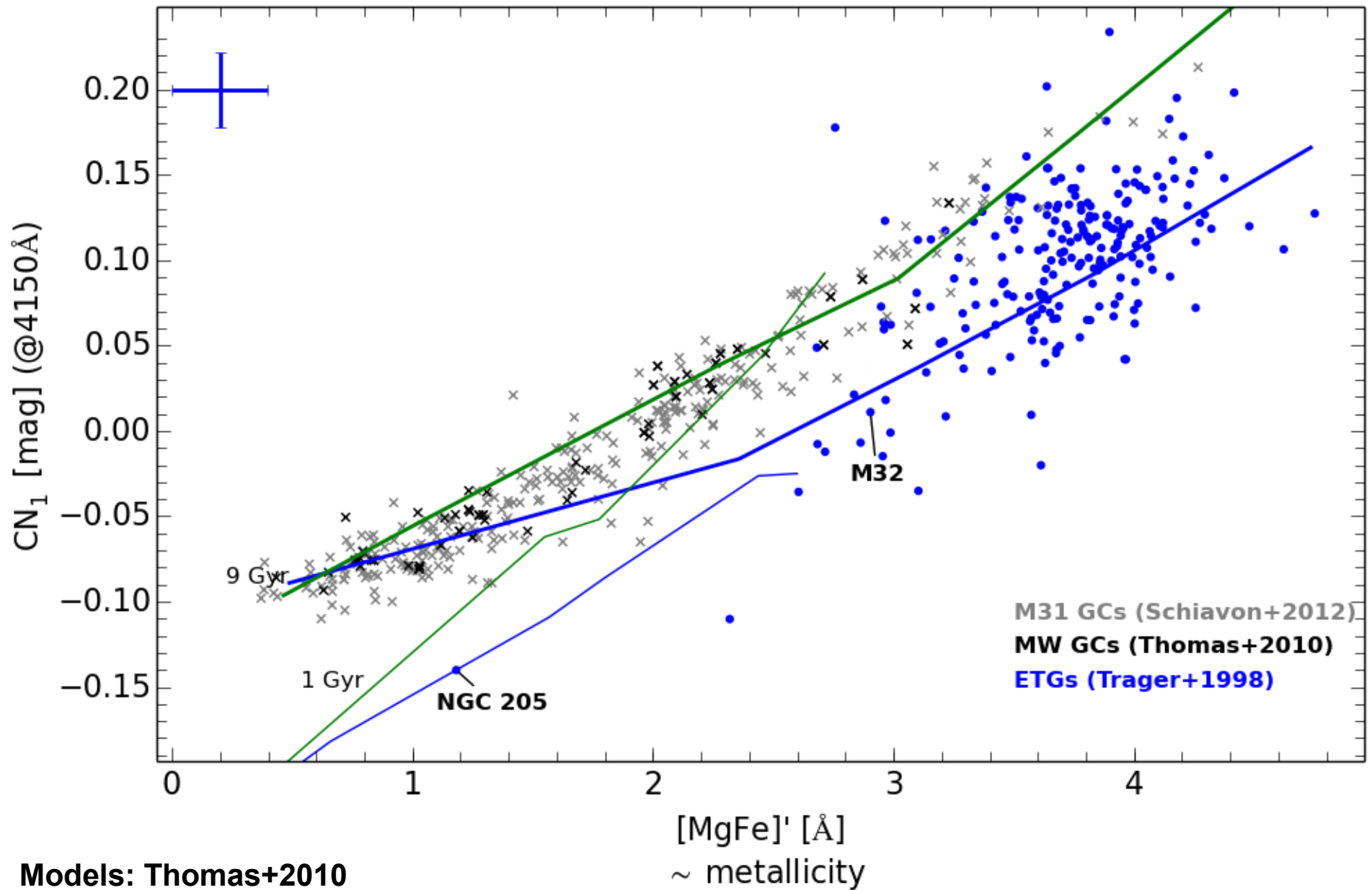
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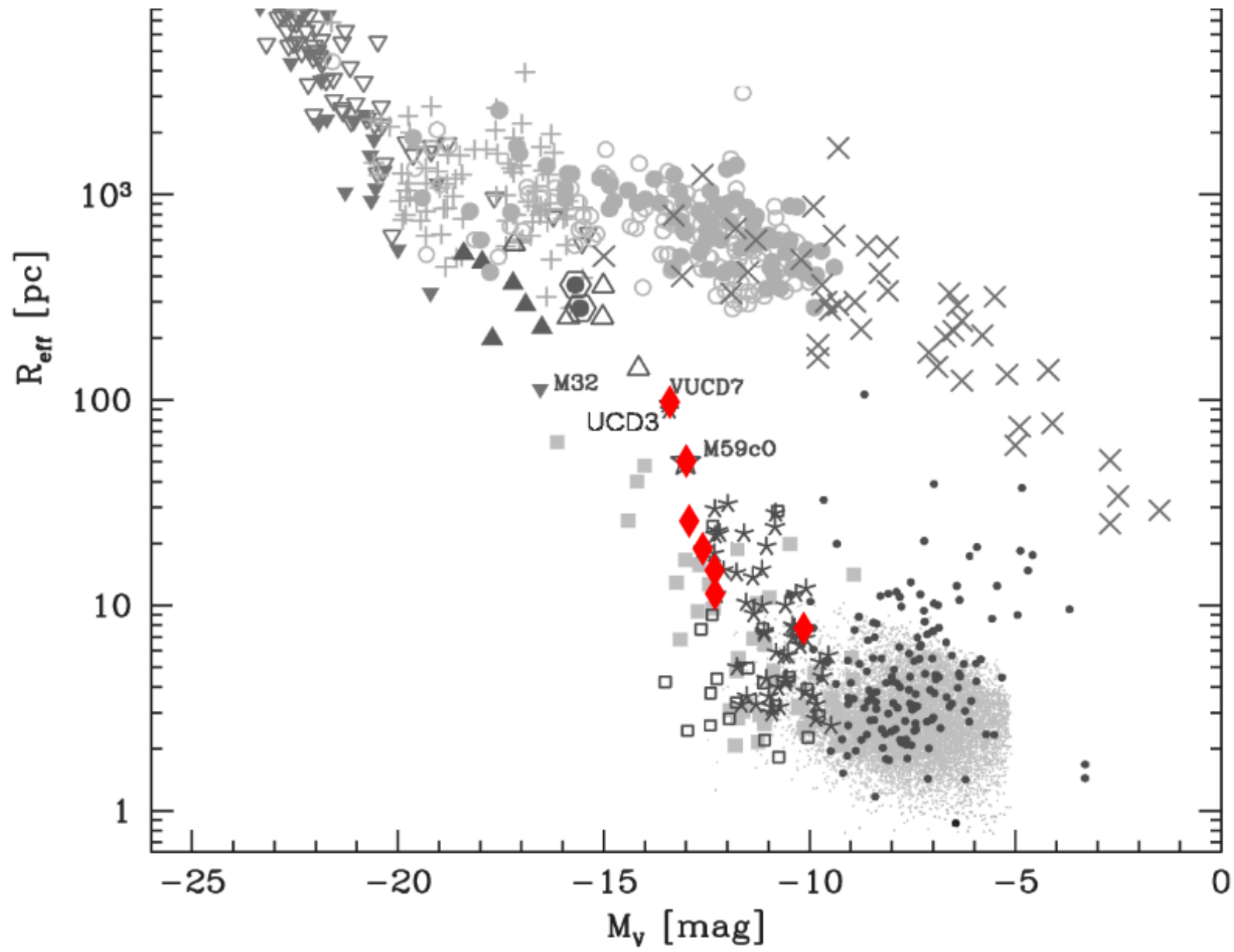
“... the halo cluster NGC 2419 was long thought to be a unique object, while it can now be seen as a harbinger of the new class of UCDs.. (Brodie+2011)



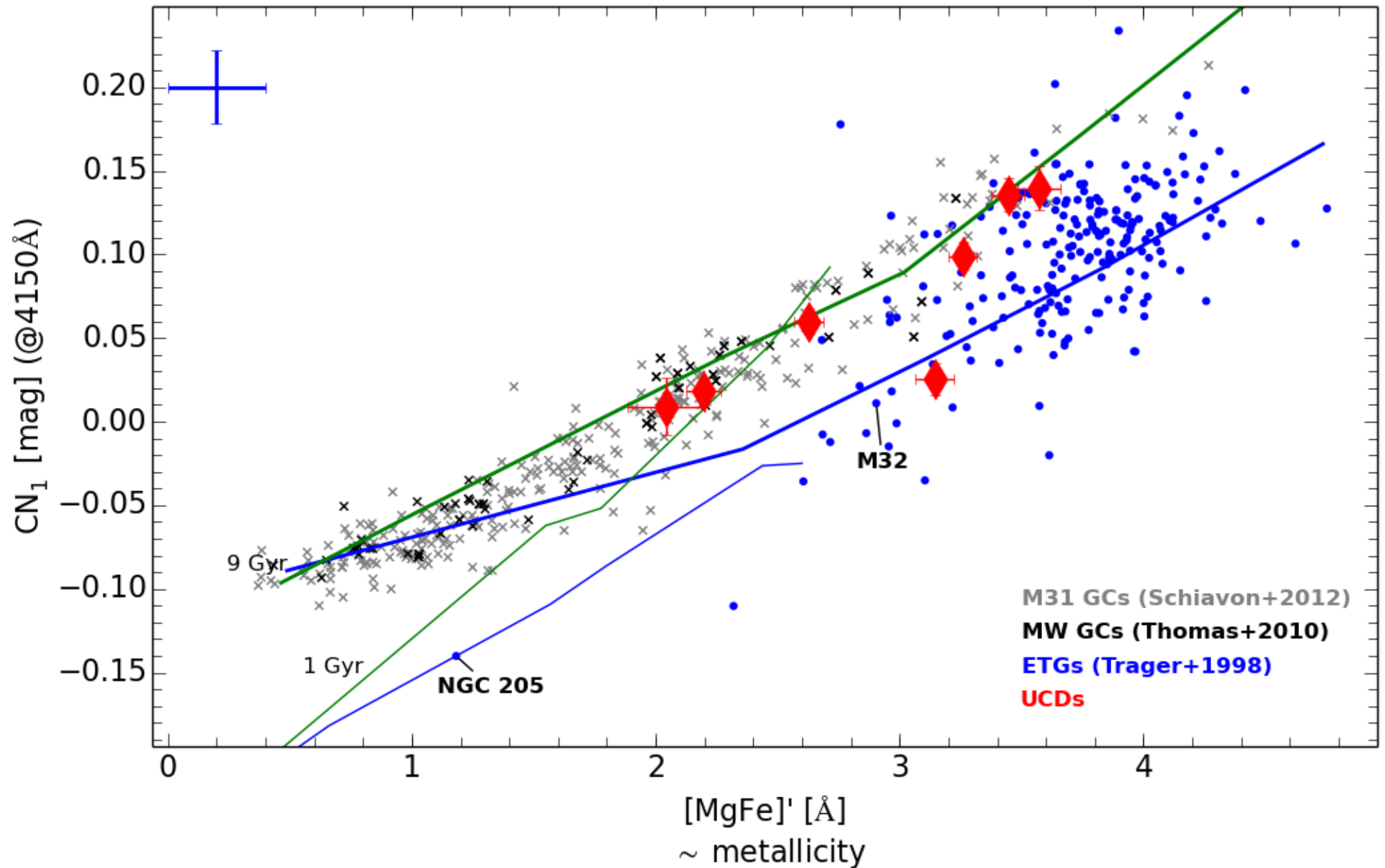
In integrated light



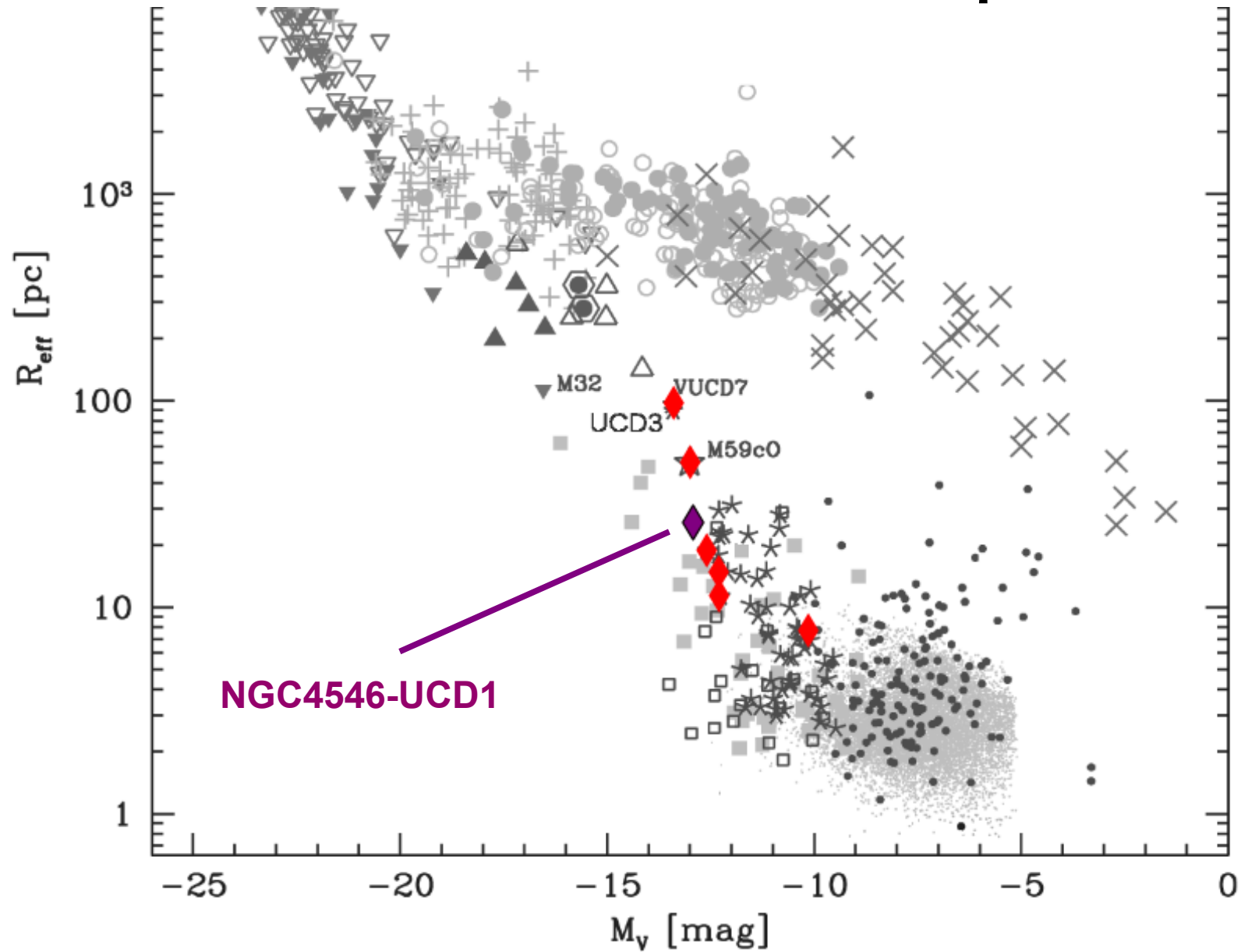
X-Shooter UCD sample



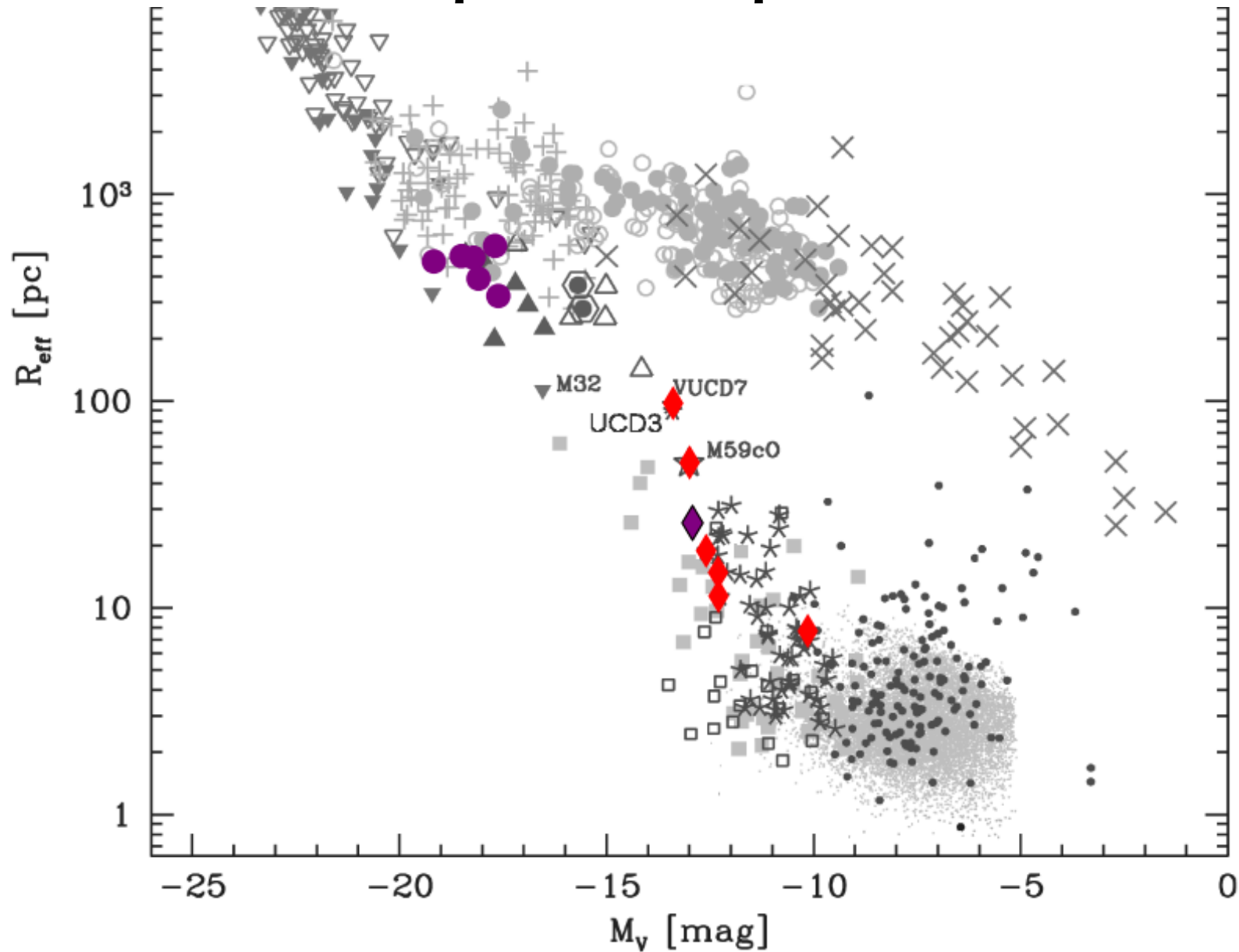
X-Shooter UCD sample



X-Shooter UCD sample

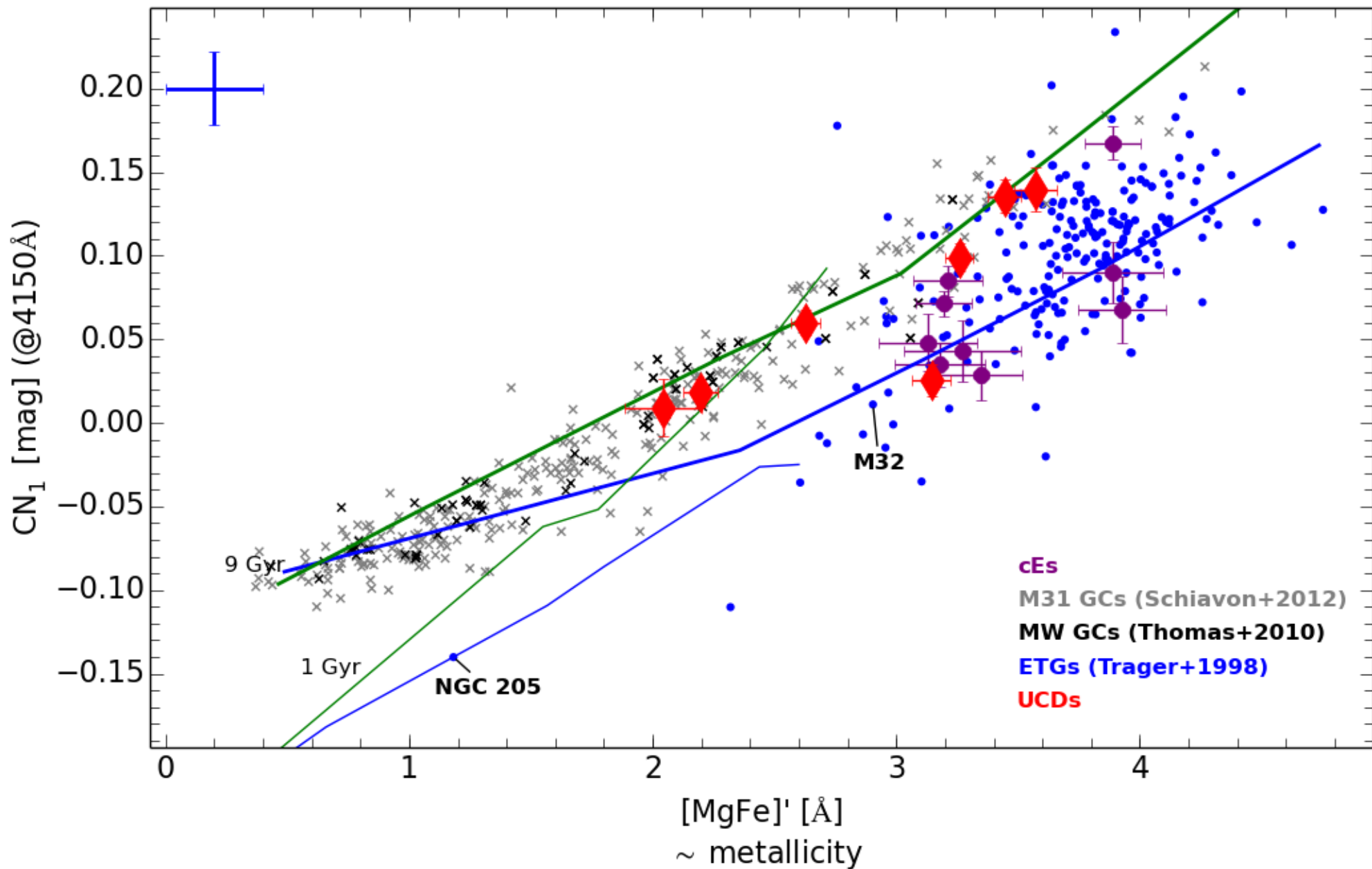


compact Ellipticals

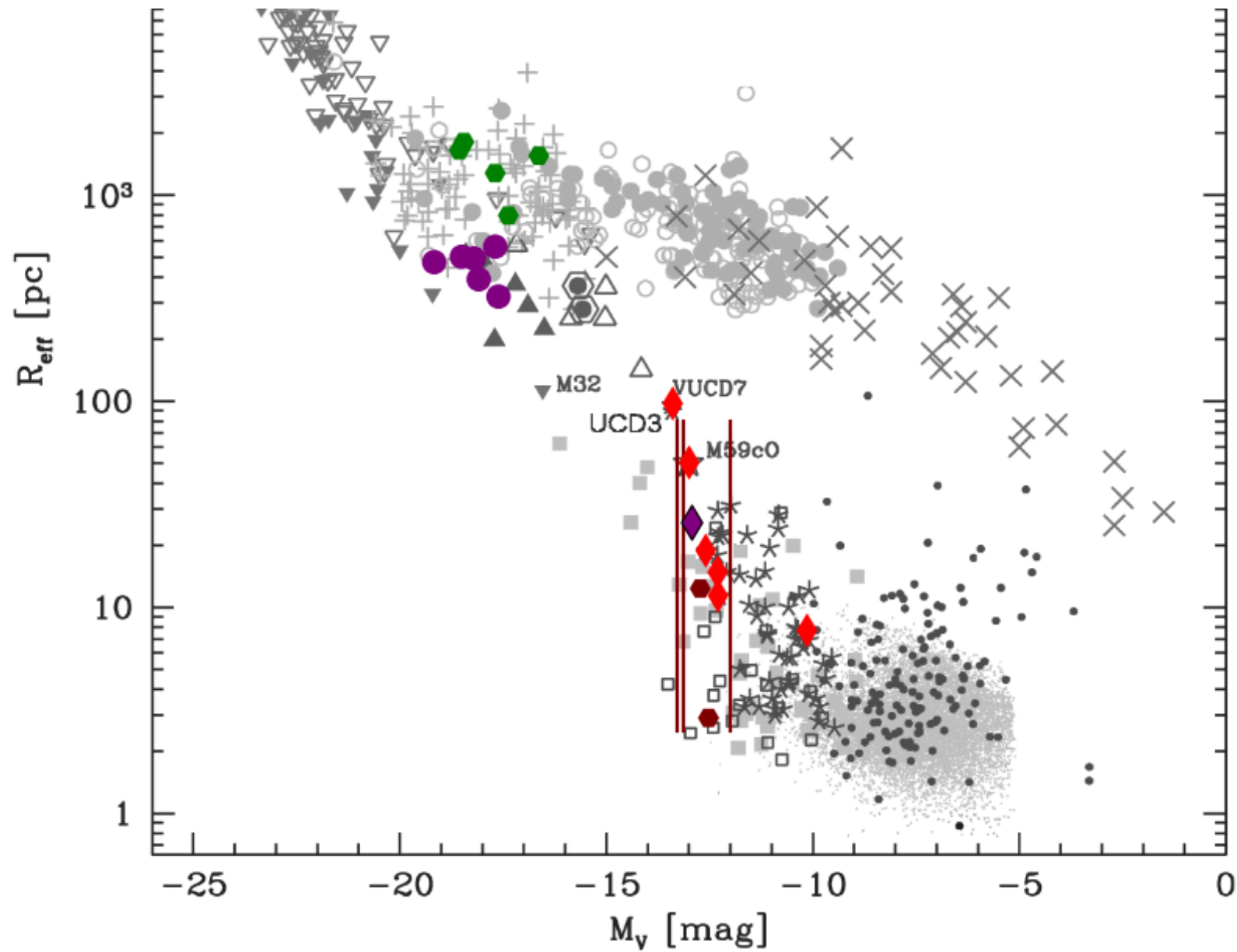


Sample: Chilingarian+2009, Huxor+2011, Huxor+2013, Paudel+2014
Spectra: SDSS

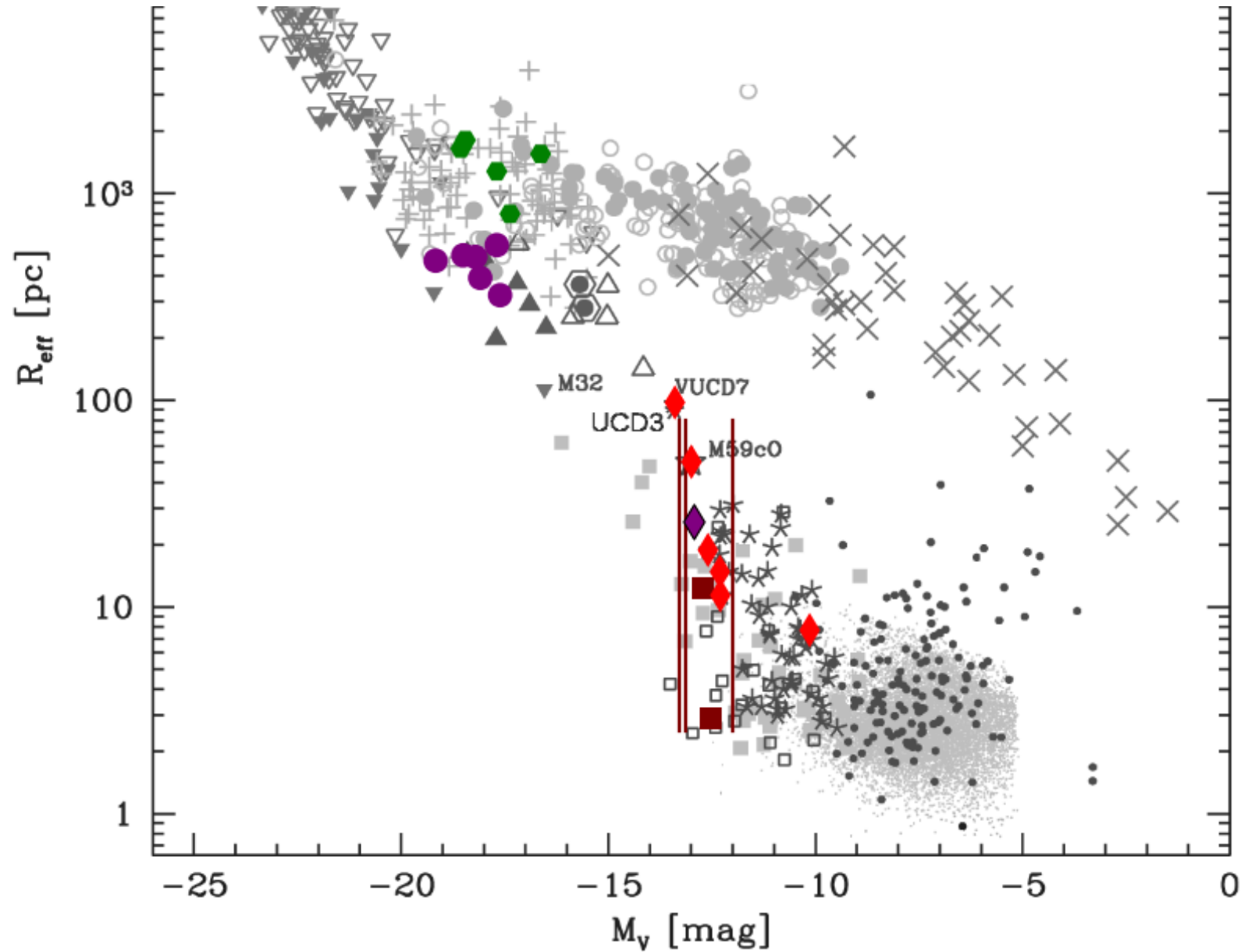
compact Ellipticals



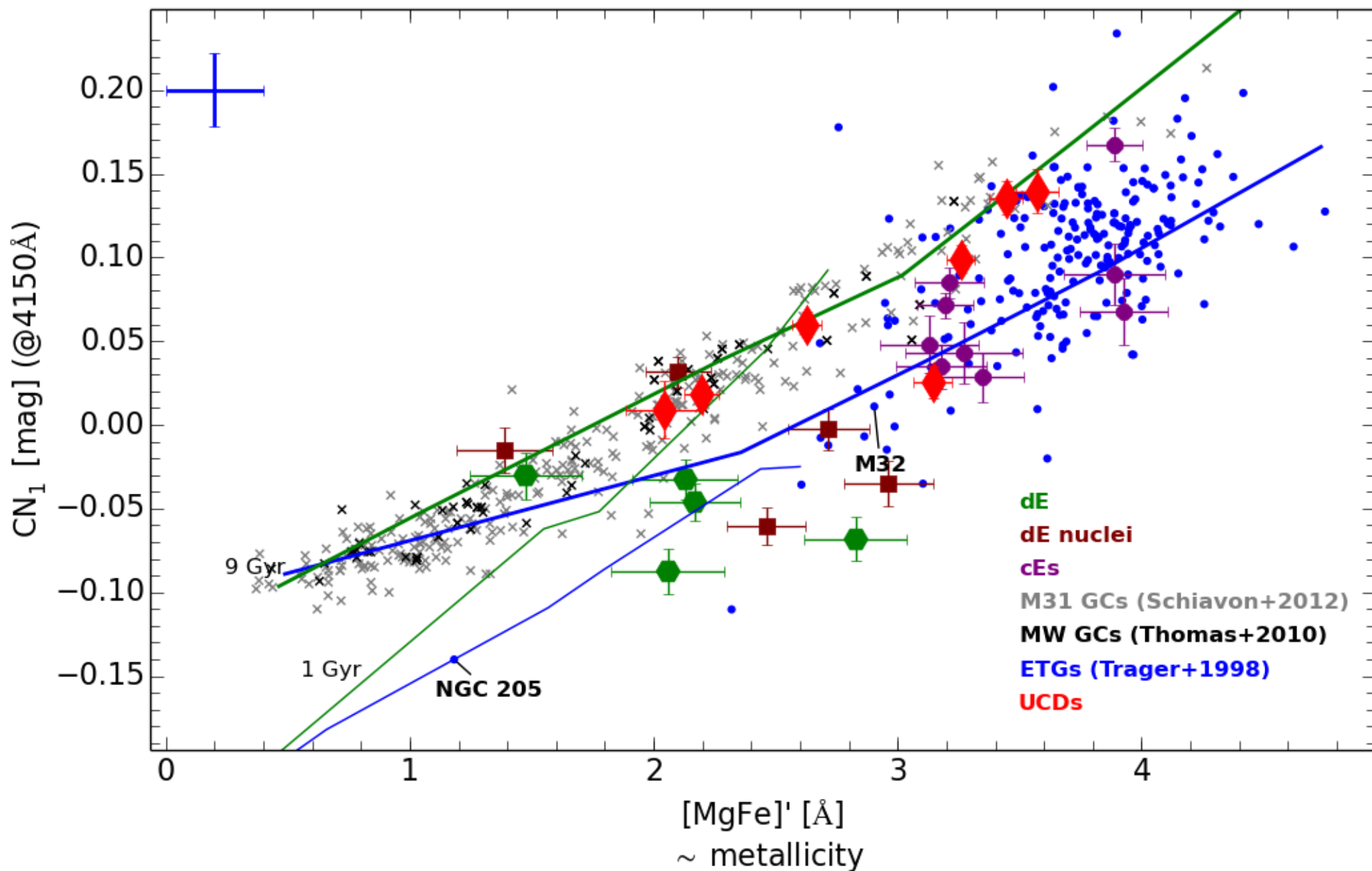
What about nuclei?



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What about nuclei?



Summary

Light-element enrichment gives information perpendicular to observing tidal stripping, measuring the SFH and kinematics

6 out of 7 UCDs fall right on the CN-enrichment trend of GCs

NGC4546-UCD1 is not a GC

at least one dE nucleus in our sample appears GC-like