Annual Meeting:
Chemical Properties of Globular Clusters

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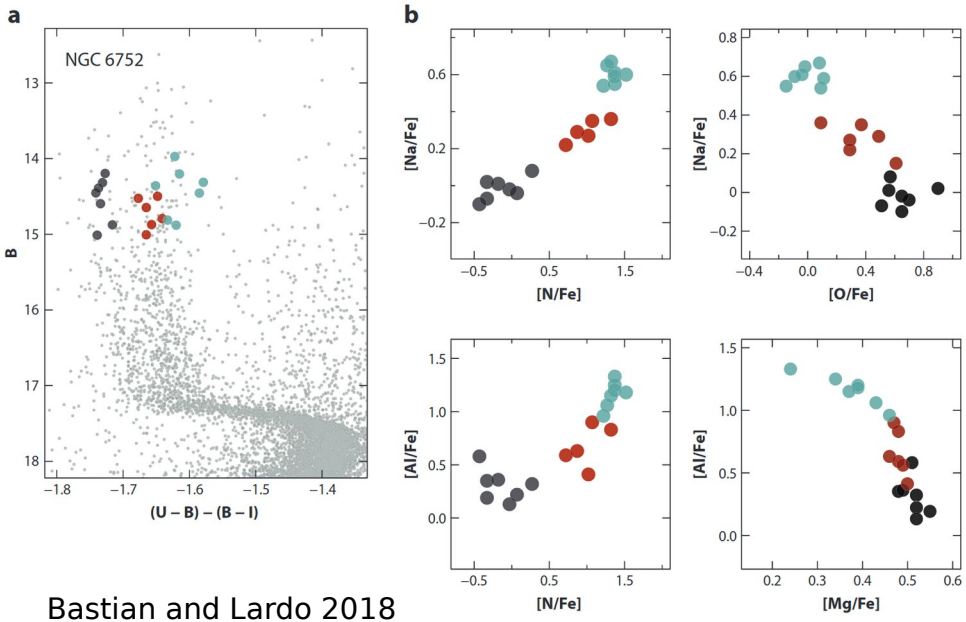
Globular Clusters

- Large and dense agglomerate of stars
- **Old** and the majority is **metal-poor**
- Their formation?
- They consist of multiple stellar populations



Bastian and Lardo 2018

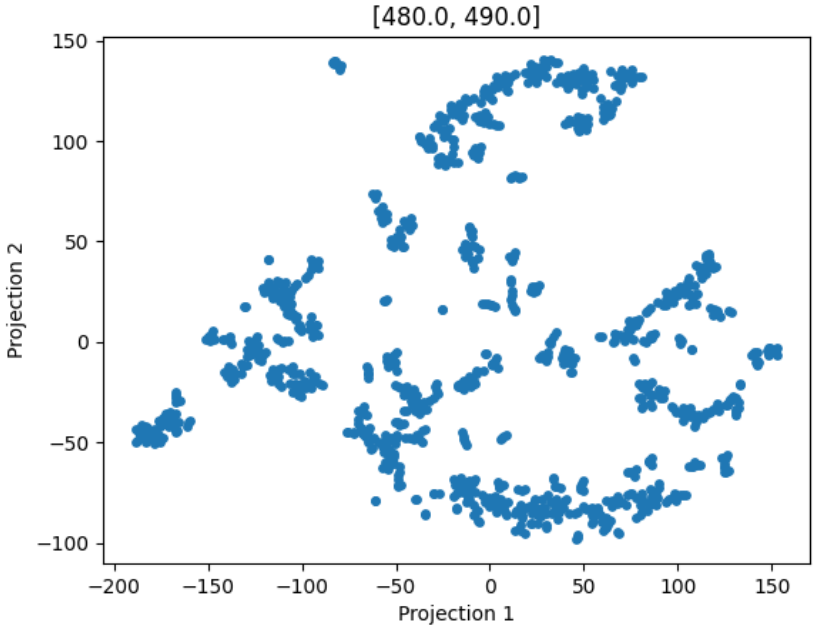
Our Sample

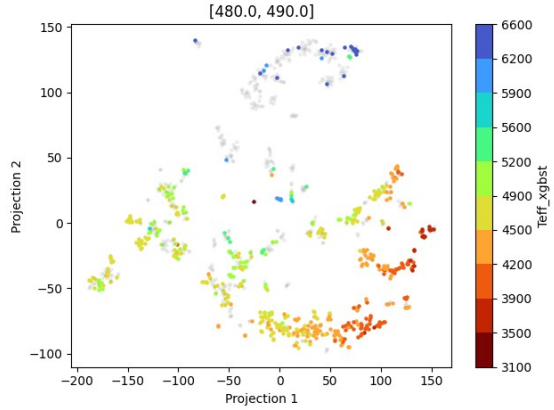
- ESO UVES Spectrograph
- Wavelength coverage varies between 300 and 1000 nm
- **SNR > 5** spectra are used
- **High resolution** (between 20 000 and 110 000)
- ~2800 spectra of ~1300 stars from 50 clusters

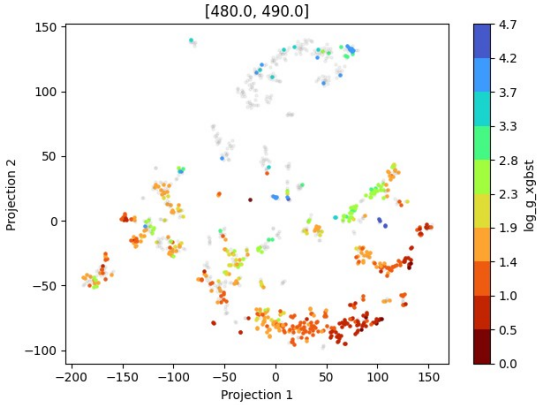
CHESS Analysis Steps

- Downloading spectra from the ESO Archive
- Target identification
- Homogenize spectral resolution
- Radial velocity correction
- Resampling (Dispersion matching)
- Flux Normalization
- X-match with external catalogues (Gaia DR3, 2MASS, PanStarss, Andrae et al. (2023, etc.)

Similarity Analysis

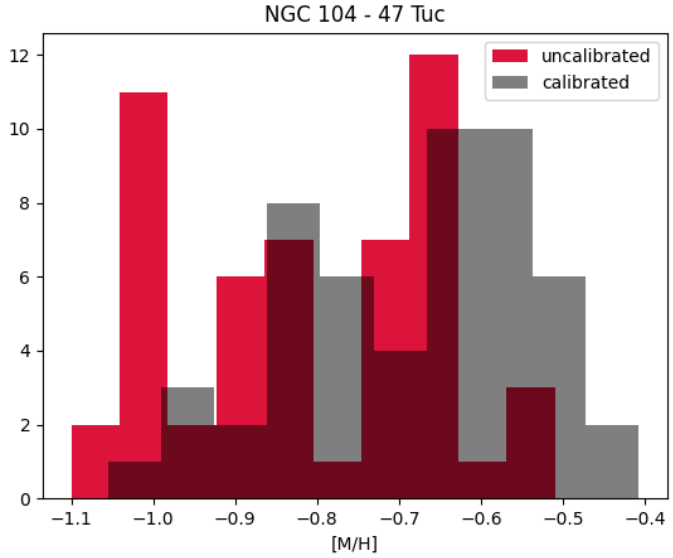


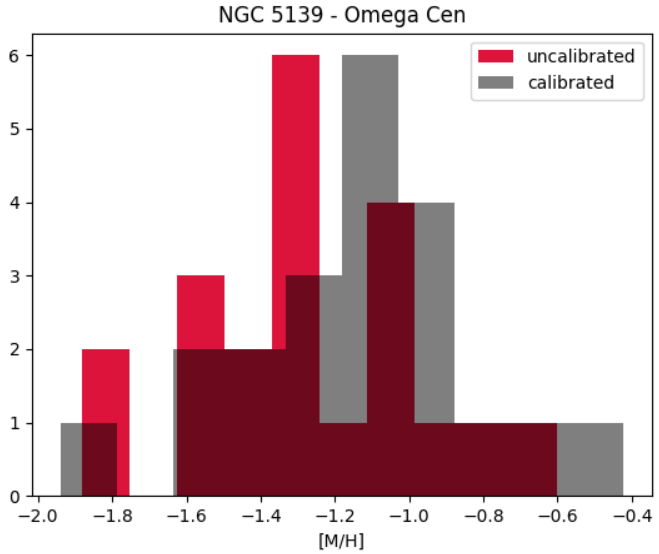




Stellar parameters: Andrae et al. 2023

Metallicity Distributions with Gaia DR3





- 0.1 dex metallicity variation found in 47Tuc (Marino et al. 2023)
- Recio-Blanco et al. (2023) for calibration

Other Activities

- Part of an international group working on chemical abundances in the near-infrared region:
  - One published paper in 2023: Afsar, M., et al. ApJ, 949, 86
- Became a member of European Astronomical Society (EAS)
- Re-elected as the chair of the Student Representatives of CAMK-PAN
- Poster presentations in Polish Astronomical Society and EAS meetings
- Participation and a short talk in the XXXIV Canary Islands Winter School of Astrophysics, November 7-16, 2023, Tenerife, Spain
- 3 monographic, 1 interdisciplinary lectures and 2 workshops in the GeoPlanet Doctoral School
- Talk in the Annual PhD Seminar at CAMK, September 19, 2023, Poland
- Help to organize Open day at CAMK in the Science Festival 2023

Thank you for your attention!