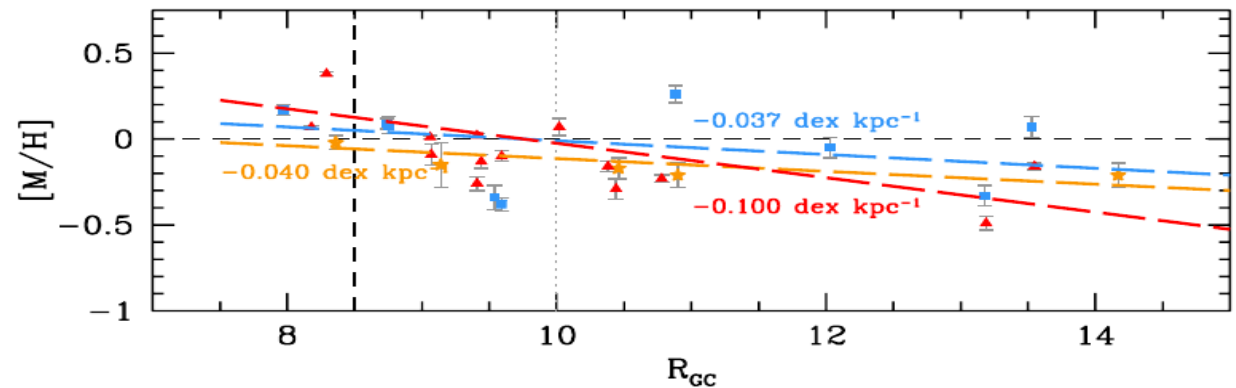
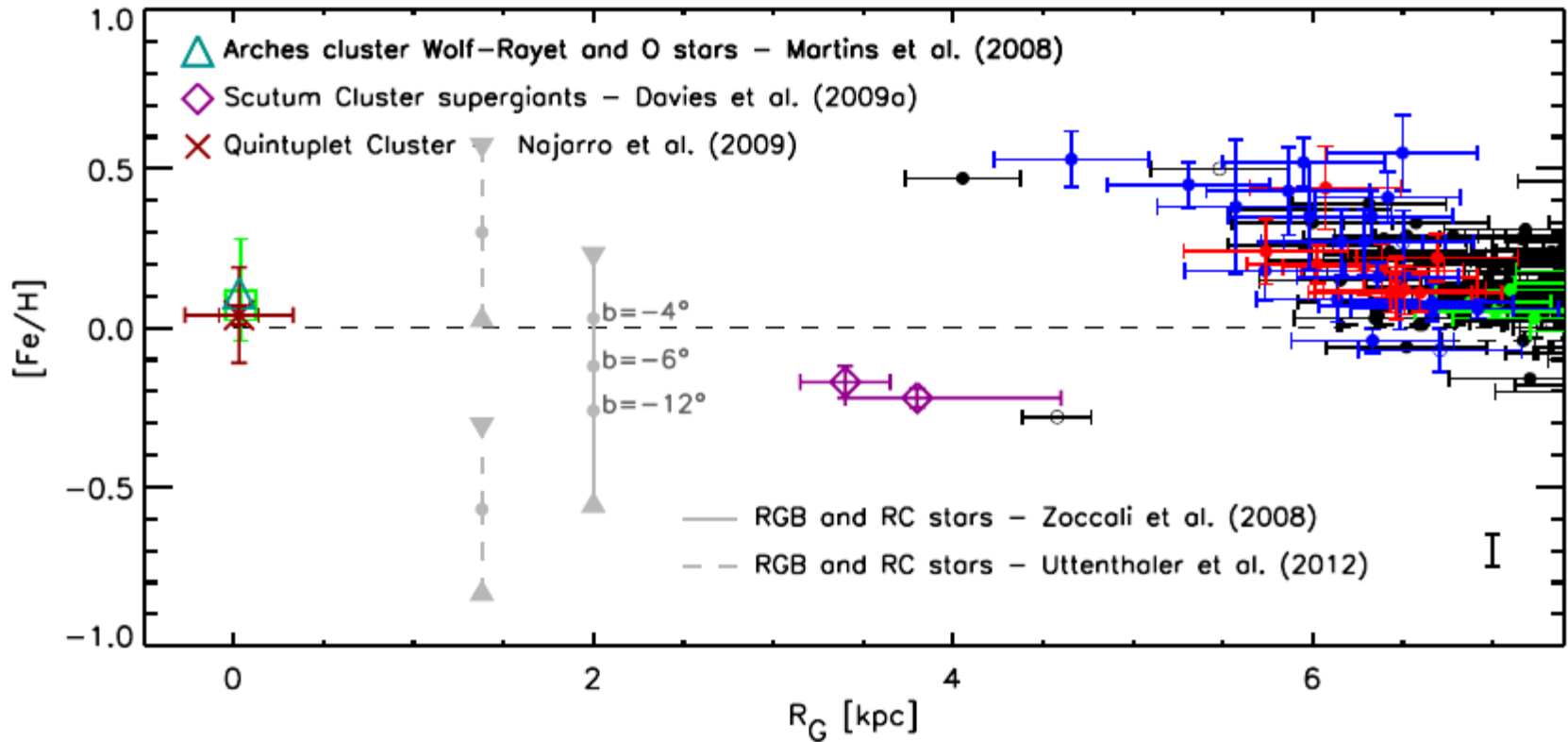


Background

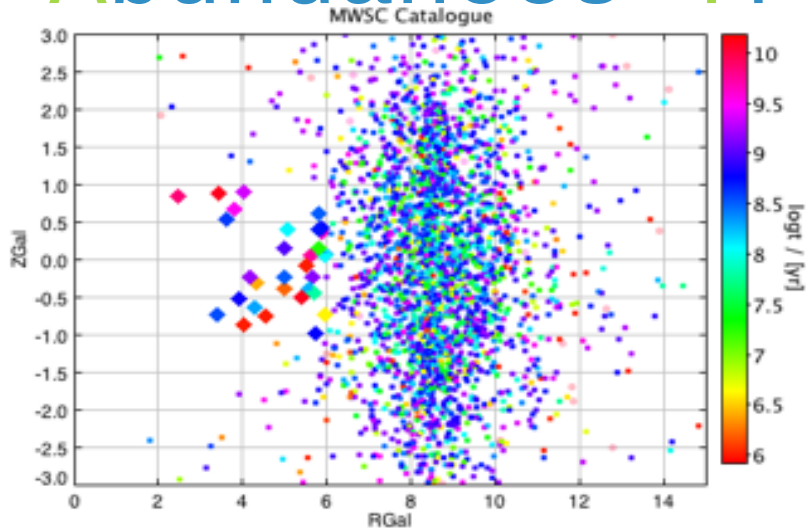


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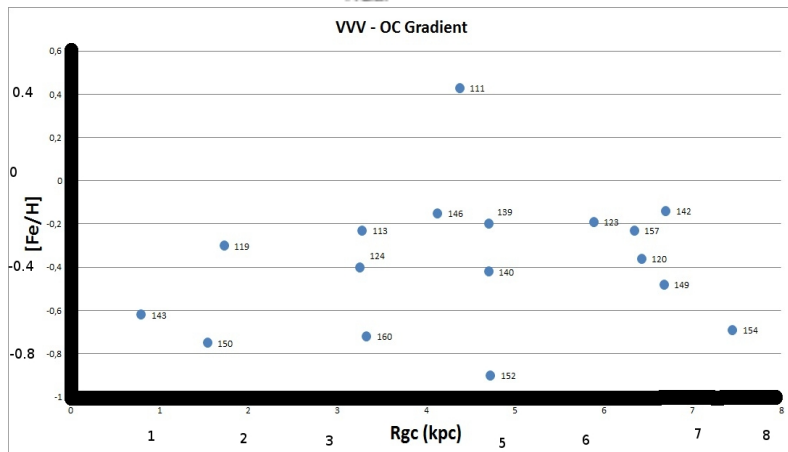
VVV Inner MW Clusters

Searching and Exploring Open clusters for Milky Way Abundances Trends



MWSC (Kharchenko+2013): 30 OCs with $|Z_{gal}| < 1$ kpc, $2 < R_{Gal} < 6$ kpc
3 OCs with initial estimates of metallicity and age

VV (Borissova+2011, 2014): 158 new OCs in the inner MW, ~ 20 with well-determined parameters
 $|Z_{gal}| < 1$ kpc, $2 < R_{Gal} < 6$ kpc
3 OCs with initial estimates of metallicity and age



Project Timeline

- **First 6 months : Preparation and Proposal**

- Determine known OCs within $R_{\text{Gal}} < 4$ kpc from surveys (vvv, MWSC, etc) – homogeneous photometric analysis
- Select OCs within $4 \text{ kpc} < R_{\text{Gal}} < 10$ kpc for control sample (CS)
- Write observation proposal: Long-term program for NIRSPEC@Keck II
 - Resolution: 25,000
 - Wavelength: 0.95-5.5 microns

- **Next 2 years : Observations and Reductions**

- 30 OC and 10 CS (desired SNR~100) with avg. 5 red giants per cluster
- Optimal visibility: Aug-Dec
 - Need ~40 nights over 2 years

- **Final year : Analysis**

- Determine abundances & stellar parameters using Equivalent Widths and Spectral Synthesis
- Estimate distances and ages using isochrones
- Interpret abundance gradients

