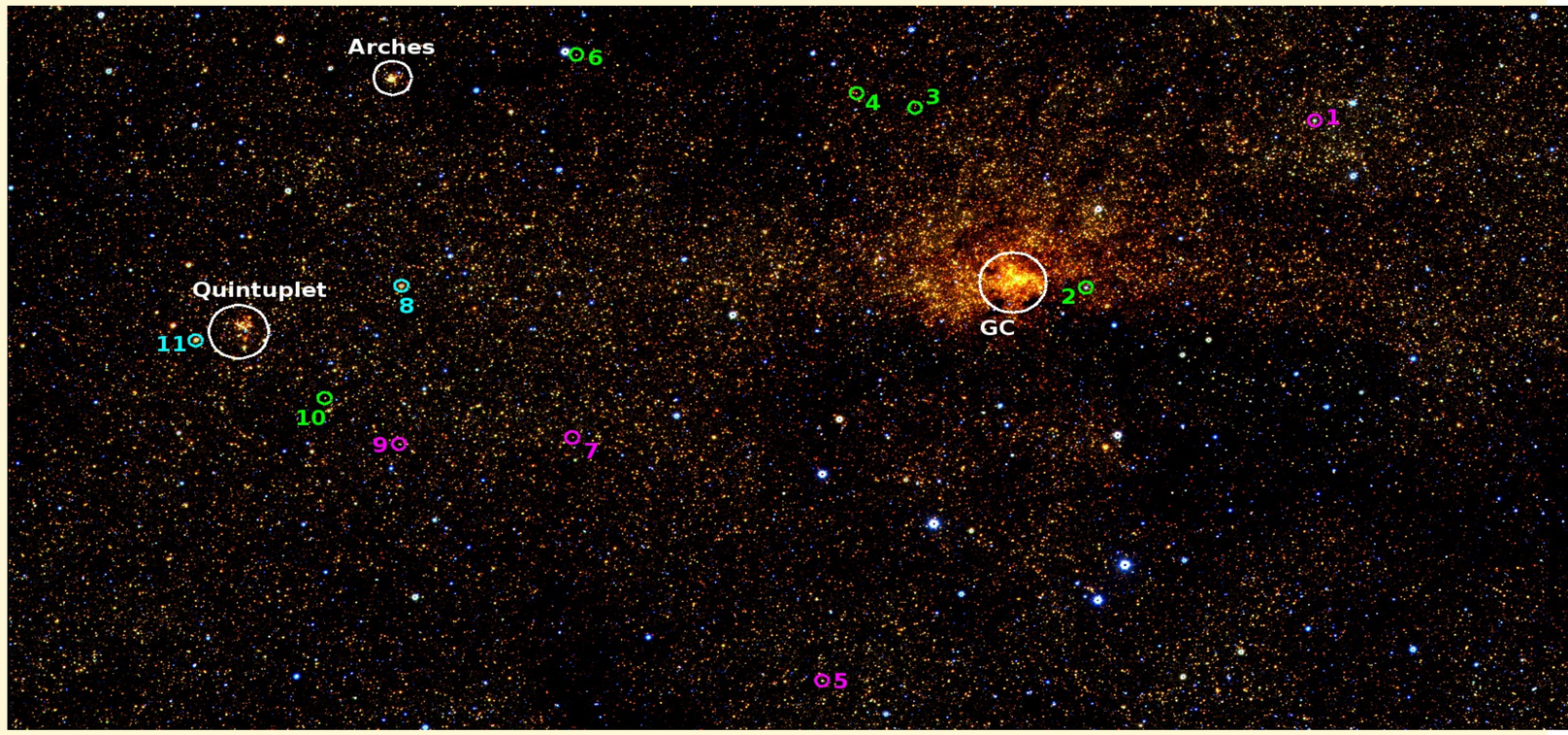
P45: Metallicity studies of the Galactic Center: Evidence of a Top-Heavy Star Formation History?

Najarro, F.(1), de la Fuente, D.(1), Geballe, T.R.(2), Figer, D. F.(3)

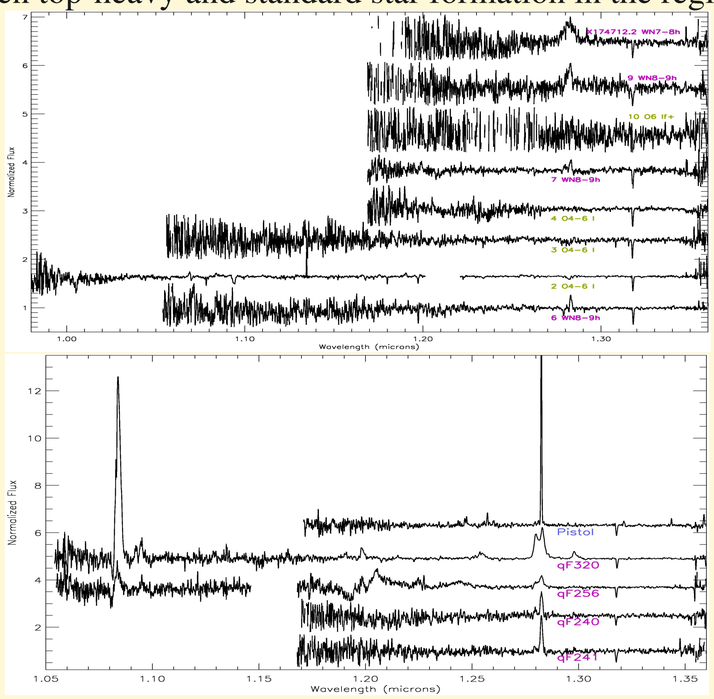
MASSIVE STARS IN CLUSTERS AND ISOLATION

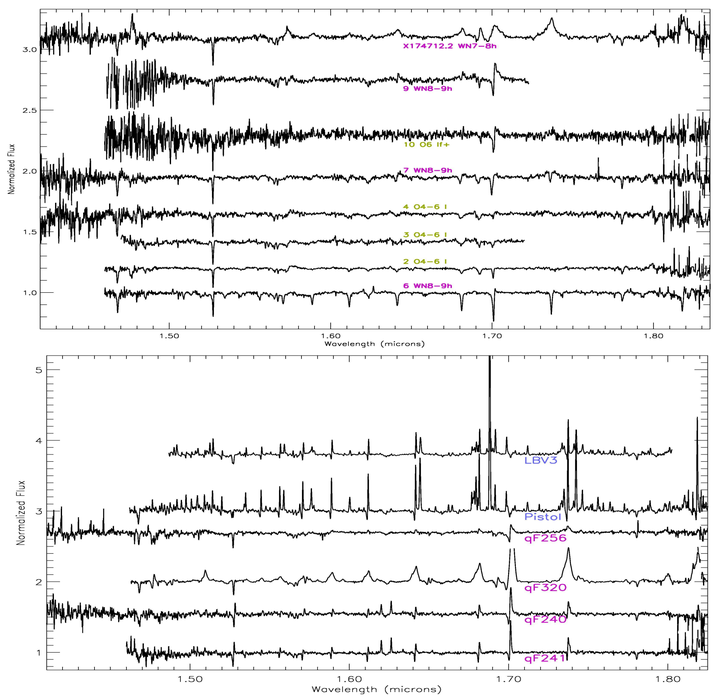
The number of detected isolated massive stars (Mauerhan et al. 2010a, 2010b, 2011) is comparable to the massive star population of each of the clusters (Figer et al., 1999, 2002). Are they results of tidal interactions among clusters, escapees from a disrupted cluster, or represent a new mode of massive star formation in isolation? Stellar properties, ages and radial velocities of the cluster and isolated stars are required to test these star-formation scenarios.

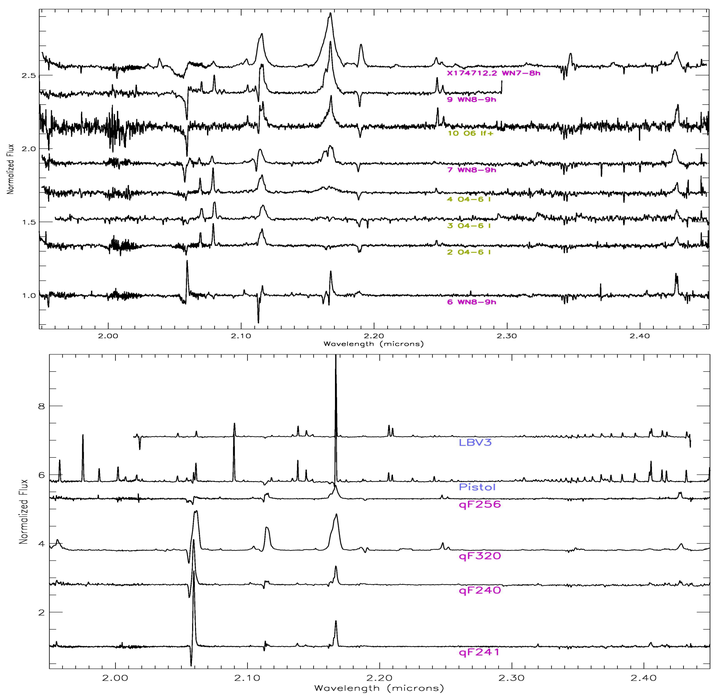


IMPRINTS OF TOP-HEAVY IMF

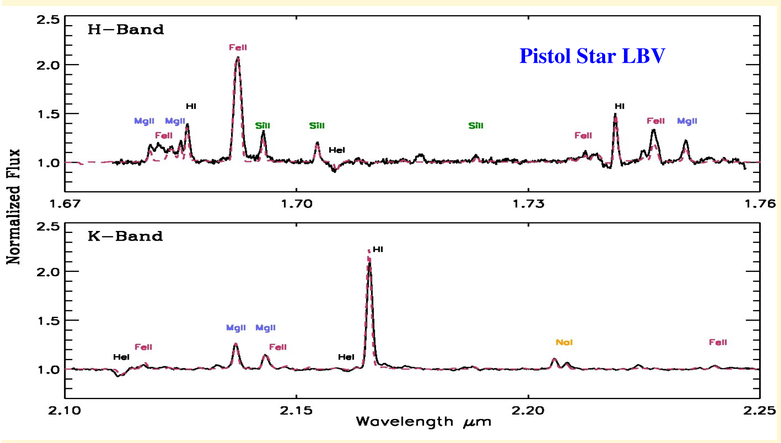
In a top-heavy the environment, the larger number of type II supernovae from massive stars produce enhanced yields of α-elements, resulting in an increase of α-element vs Fe. Quantitative NIR spectroscopy of high-mass stars by means of our recently developed techniques (Najarro et al. 2004, 2009) provides estimates of both absolute abundances and abundance ratios, telling us about the global integrated enrichment history up to the present. Abundance analyses may thus distinguish between top-heavy and standard star formation in the region.

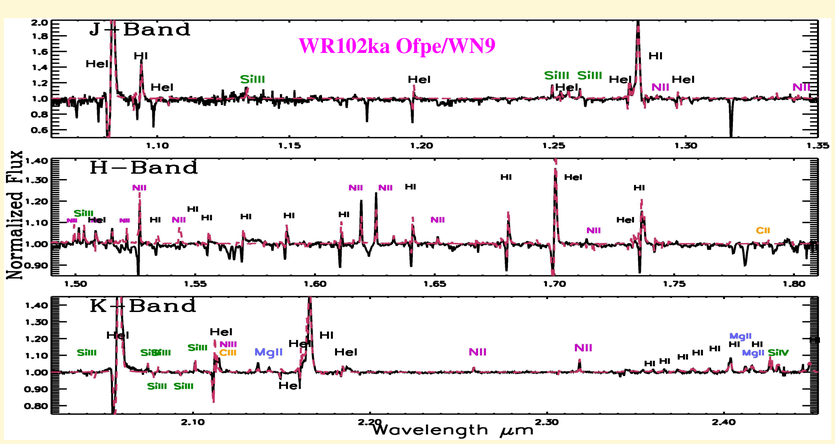


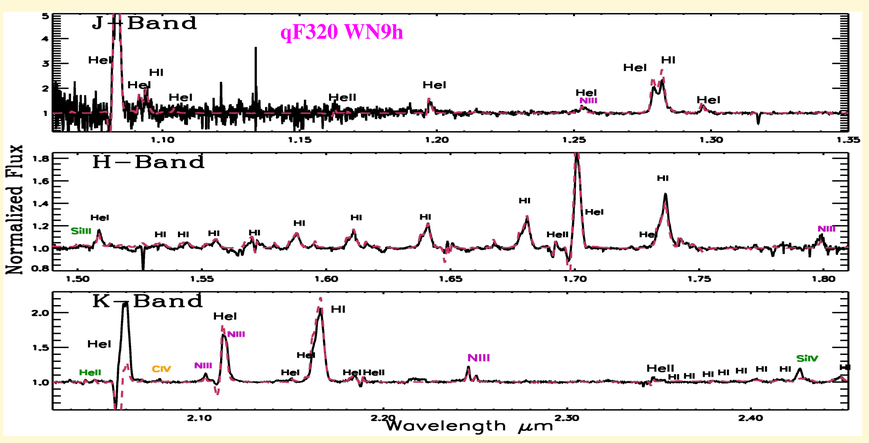




OBSERVATIONS: Around 20 massive stars in the Quintuplet cluster and GC inner region (Fig.2) have been observed since 2011with GEMINI NIFS and GNIRS near infrared spectrographs in the H and K bands at medium-resolution (R ~ 5000).







ANALYSIS: Preliminary odeling the early-type spectrato obtain physical and chemical properties. Preliminary results suggest an enhanced **α/ Fe=2 ratio.**