



MAPPING CHEMICAL ENRICHMENT VIA SUPERNOVA REMNANTS

Galen Bergsten (Dr. Gail Zasowski)
Department of Physics and Astronomy

Supernovae are a fundamental source of chemical enrichment and feedback within the interstellar medium (ISM). The distribution of supernova remnants (SNRs) contains information about the kinetics and chemistry of ejecta and map sites of explosive enrichment throughout the Milky Way over the past $\sim 10^5$ years. The near-IR regime of SNR absorption has received little study, presenting a prime discovery space for exploring the diffusive interaction between ejecta and the ISM. This project aims to characterize the ejecta chemistry and velocity of nearby SNRs using emission features in the spectra of SDSS/APOGEE background stars. Using a matched pair sample of foreground and background stars, the median residual spectra are compared to isolate intrinsic SNR features. An emission feature is tentatively identified in the background stars of multiple SNRs, and ongoing analysis will attempt to isolate potential carriers from stellar emission.

This research has been done in collaboration with Dr. Carlos Badenes and graduate student Juntong Su at the University of Pittsburgh.