

Probing the Outer Disk of the Milky Way with A-stars

Prof. Ronald J. Wilhelm
University of Kentucky

Thursday

November 13

12:30 P.M.

Rm 184 NSH

The disk of the Milky Way beyond the solar circle is not open to simple interpretations. In short, it is a mess. From observations of interstellar gas it is clear that the disk has both a warp and a flare. The stellar component is riddled with stellar over-densities and/or streams, the largest of which is the Monoceros stream. It is unclear whether gas is in-falling and still building the outer disk, whether the distribution of dark matter inflates the outer disk, if interactions with satellite galaxies are perturbing the disk or if disrupted satellites are adding to the disk. It is possible that all of these effects are contributing. What is clear is that the outer disk of the Galaxy holds many clues as to how galaxies form and evolve.

Studying stellar populations in the outer disk is useful but currently has limitations because spatial and kinematic distributions are not uniquely described by the various Galactic models used to explain the structure of the outer disk. I will discuss our current attempts at helping to constrain properties of the outer disk using spectroscopic analysis of A-star samples. Part of my talk will be dedicated to our analysis of normal and chemically peculiar A-stars in the SDSS DR8 sample and in particular what can be learned about the Monoceros stream from the spatial and kinematic distribution of these stars and the specific frequency of CP stars compared to the chemically normal A-stars. I will also show results from our investigation of blue plume stars at the center of the Canis Major Over-density and briefly mention or future goal to explore dust distribution in the disk using A-stars.