

Name: Thomas Gomez

Majors: Astronomy and Physics

Faculty Mentor and Department: Professor Bruce Balick, Astronomy

University: University of Washington

Project Title: Searching for Planetary Nebulae in the Milky Way Halo

Abstract:

In the Milky Way, there are very few planetary nebulae (PNE) known to be in the halo, less than a dozen. Studies of the Andromeda Galaxy have shown that there are more than 700 PNE in the thick disk alone. Extrapolating expectations to the Milky Way, we would expect to find several thousand PNE in the halo. We are attempting to use databases such as SDSS, whose survey concentrates outside the plane of the galaxy, to identify new planetary nebulae candidates in the thick disk and halo. Our recent research shows that it is possible to refine the search using near-infrared colors from 2MASS. Combining 2MASS and SDSS were able to produce more viable candidates. We have observed halo PN candidates using a narrowband [OIII] filter and a Sloan g' filter at the 0.5m ARCSAT telescope at APO and the 0.75-m telescope at Manastash Ridge Observatory. There is also effort to conduct a [OIII] survey at the Kitt Peak .9m telescope. Once we identify objects with strong [OIII] emission, their spectra will be observed on the APO 3.5m telescope.