

A SEARCH FOR ASTEROIDS ORBITING WHITE DWARFS

Rosanne Di Stefano

Smithsonian Institution/Smithsonian Astrophysical Observatory

GO30027

Do white dwarfs host asteroid systems? To answer this question we propose that Kepler continue the first search for asteroids transiting a white dwarf. Kepler's unique photometric sensitivity will allow it to detect the passage of 100-km class objects against the small disk of a white dwarf. To achieve this goal, we propose to continue our AO2 program to conduct observations of 2 white dwarfs in Kepler's 1-minute cadence mode. Theoretical arguments, recent observations of metal-enriched white dwarf atmospheres, and detections of debris disks, suggest that white dwarfs may be orbited by large populations of asteroids. Data collected by Kepler may provide the most direct evidence that such populations exist. A second year of observations is essential to increase the chance of detecting transits and to significantly increase the science return from any AO2 detections. Public interest in this type of project is high, making it ideal for education and outreach.