

Extrasolar Planets Around Eclipsing Binaries. I. A Photometric Search Of Baade's Third Window In The Galactic Plane

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Having completed a 1000 hour search for terrestrial planets (down to 2.5-Earth-Radii, *i.e.*, planets 1% the size of Jupiter) in the circumstellar habitable zone (planet periods from 5 to 60 days) around the small eclipsing binary CM Draconis, (thus well characterizing especially the low frequency observational noise), we have begun an extension of these techniques to a crowded field search. We have also completed a search for jovian-mass planets around 9 additional small-mass eclipsing binaries using the O-C timing method. Our present observational data include V, R, and I-band photometry of Baade's Third Window (BW3) in the Galactic plane, a field in which 108 eclipsing binaries have already been identified. If 51-Pegasi-type planets form around close binary systems, and with the same frequency as they have been found around quiescent single stars in the solar neighborhood, then our first data set should contain a couple of such transits. We discuss some of the advantages of searching eclipsing binary stars for extrasolar planets, and future work, which we hope will soon include a statistically significant comparison of the rate of large giant planet formation in the Galactic plane with the rate in an older stellar population (*i.e.* globular clusters; see talk by Rottler *et al.*)