

Extrasolar Planets Around Eclipsing Binaries II: A Photometric Search in the Globular Cluster NGC6752

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Data from 6 nights of V and I band photometric observations of the metal poor globular cluster, NGC6752, taken with the 4-meter telescope at CTIO are used in a preliminary search for extrasolar planets around short period eclipsing variables. The method of detection is the sub-noise detection algorithm developed for the planet search in the “circumstellar habitable zone” around CM Draconis. The limited timebase of this sample necessarily restricts the study to detection of inner giant planets (51-Pegasi class) with periods of 6 days or less. This cluster is quite old, between 14.5 and 15.5 Gyr, so most of the stars remaining on the the main sequence are expected to be small low-mass systems. The binary occurrence rate is expected to be about 38% in the core region of the cluster and around 16% outside this region. Given the above and 10,000 stars in the field one could begin to detect 51-Pegasi type inner jovian mass planets by transit if the frequency of occurrence is on the order found by the radial velocity method in younger, solar type populations. A comparison of the frequency of occurrence of giant short period planets in this older cluster with the rate detected in a much younger population in the galactic plane is made and discussed in relation to the frequency of occurrence derived from the discovery of such systems in the solar neighborhood (see abstract by Doyle *et al.*). This could allow one to begin to put constraints on theories of long term planet migration after significant evolution of planetary systems has occurred.