**The K2 Young Suns Survey: Clues to Star and Planet Formation from Observations of Young Open Cluster Stars**

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We propose to obtain light curves for more than 1000 low mass members of  
  
the Pleiades, Hyades and Praesepe open clusters in Campaigns 4 and 5 of  
  
the K2 mission. We will use these data to: (a) determine the frequency  
  
of close-in gas giant planets in these clusters (and hence determine if  
  
being born in a dense environment affects the planet formation process);  
  
(b) identify eclipsing binary stars among these cluster members,thereby  
  
providing new precision tests of stellar evolution models; and (c) determine  
  
properties of these stars related to their youth (spottedness,  
  
rotation period, flaring frequency) better than can be done from ground  
  
based observations. By combining these data with similar data we have  
  
obtained with CoRoT for the 2 Myr old NGC 2264 open cluster, we will  
  
address how these properties evolve with time. The results from this  
  
program would add significantly to our knowledge of the origin and  
  
evolution of stars and planets, thereby directly addressing one of the primary  
  
NASA astrophysics goals.