

## **A CALIBRATION STUDY OF VARIABLE STARS IN THE KEPLER FIELD: CYCLE 2**

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We propose to do a calibration study of variable stars in the Kepler Field which will enable us to produce enhanced data products that will support and extend the broad science goals of the Kepler mission. Our primary objective is to produce proper flux-calibrated astronomical-grade light curves for individual stars that will complement the detrended light curves produced by the Kepler data pipeline. Relying upon the planned calibration efforts of the Kepler Science Team, we plan to produce nearly time-continuous light curves which extend the planned current monthly time base differential light curves to at least a quarterly basis and possibly a time base covering the entire 3.5 year lifetime of the Kepler primary mission. These light curves will have a Y axis value of "Flux" (in ergs/sec) instead of "Relative Flux" (in electrons / cadence) as given in the standard Kepler detrended light curves that are delivered by the Multimission Archive at STScI. This extended time base capability will support Kepler mission efforts to characterize the nature of the host stars of detected planetary candidates; in particular we will be able to gain better insight to the nature of brightness fluctuations over days to months which might be caused by chromospheric activity.