

Sarkis, Paula

Transit-Depth Metallicity Correlation: A Bayesian Approach

A negative correlation was previously reported between the transit depth of Kepler's Q1-Q12 gas giant candidates and the stellar metallicity (Dodson-Robinson 2012). In the present work, we revisit this correlation which is crucial for the giant planet formation theory, especially that the number of detected planets has increased. But large-scale surveys, such as Kepler, are subject to selection effects and biases. These biases should be accounted for in the analysis in order to better understand the correlation. We present the first hierarchical Bayesian regression model to revise this correlation. Our sample consists of the latest updated Kepler giant planets based upon 4 years of high precision photometry (Q1-Q17).