

P211c Spitzer Studies of K2 Exoplanet Candidates

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K2 is in the midst of identifying transiting exoplanet candidates around stars in the ecliptic plane. We are conducting Spitzer follow up observations for the purpose of confirming and characterizing these candidates. Spitzer's high cadence, high precision photometric capability in the near infrared make it uniquely suited to this task. The higher cadence allows for better measurement of transit timing and orbital parameters. The addition of even a single additional transit measurement can drastically reduce uncertainty in the period. This is crucial for the future study of exoplanet atmospheres by observatories such as JWST, and Spitzer's high precision photometry enables this for transits that cannot be measured from the ground. For multi-planet systems with near-resonant periods, the deviation from Keplerian orbits can be large, and Spitzer can measure transit timing variations (TTVs) which cannot be detected in the K2 data alone. The achromaticity of measured transit depth between the Kepler and Spitzer bandpasses helps to confirm the planetary nature of the transit signals in the K2 data. This study is expected to increase the total number of known exoplanets orbiting M dwarf host stars by as much as 50%, as well as constrain their orbital and physical characteristics.