Space Telescope Synergy:
Spitzer Follow-up of K2 Targets

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Artwork by Melody Hardegree-Ullman
Spitzer Programs 11026 & 13052

PI Mike Werner

68 observations between 03/2015 & 10/2018

46 planets in 35 systems
Spitzer program targets are diverse

Data from NASA Exoplanet Archive
28 new K2 candidates from Exoplanet Explorers!

Zink+ (2019)
Spitzer crucial for locking down ephemerides

Kosiarek+ (2019)
K2-55 b - Consistent radii between Spitzer and K2 - $4.41R_{⊕}$

Dressing+ (2018)
K2-55 b - A dense Neptune around a high metallicity K star

Dressing+ (2018)
Poster #31: EPIC 206061524.01
Jordan Fleming, UC Berkeley

Spitzer Data with Transit Models

- Best-Fit from Spitzer Data Only
- Transit Model from Currently Published Values
- Spitzer Data
HD3167 - A TESS Test case - V=8.9

Christiansen+ (2017)
Hardegree-Ullman+ (in prep.)
HD3167 - A TESS case - V=8.9

Friday 11:30 am
Ian Crossfield
K2 atmospheres

Christiansen+ (2017)
Hardegree-Ullman+ (in prep.)
K2-288Bb discovered by Citizen Scientists!

K2

Spitzer

Feinstein+ (2019)
A stellar companion - less dilution at longer $\lambda$, K2-288B b

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Feinstein+ (2019)
K2-138 - 5 planet system discovered by citizen scientists!

Christiansen+ (2018)
K2-138 - Maybe a 6 planet system?
K2-138 g confirmed!

Hardegree-Ullman+ (in prep.)
Poster #16: Transit Multiplicity in Planet Occurrence Rates
Jon Zink, UCLA

200 Days < Period < 500 Days

\[ \Gamma(m = 1) \]
\[ \Gamma(m \geq 2) \]

\[ m = 1 \]
\[ m \geq 2 \]

Fraction Detected vs. MES
Precise Ephemerides:
K2-3 – Kosiarek+ 2019 AJ 157, 97
Several systems – Livingston+ 2019 AJ 157, 102

Neptunes:
HD3167 – Christiansen+ 2017 AJ 154, 122
K2-55 b – Dressing+ 2018 AJ 156, 70

Citizen Science:
K2-288B b – Feinstein+ 2019 AJ 157, 40
K2-138 – Christiansen+ 2018 AJ 155, 57
www.system-sounds.com/k2-138/

TTVs:
K2-24 – Petigura+ 2018 AJ 156, 89