TESS Science Conference III – Program

MONDAY, JULY 29

9:00 – 9:15 Welcome, SOC chair

9:15 – 10:35 Session: **Mission Overview**. Chair: Sam Quinn
9:15 – 9:40 **George Ricker** (MIT; Invited Overview Talk) - *TESS Mission: Status and Ongoing Mission Strategy*
9:40 – 10:05 **Roland Vanderspek** (MIT; Invited Overview Talk) - *Mission Operations: Status and Future Prospects*
10:05 – 10:20 **Dave Latham** (Center for Astrophysics | Harvard & Smithsonian) - *The role of the TESS follow-up observing program working group*
10:20 – 10:35 **Christina Hedges** (NASA GSFC) - *Update from the TESS science support center at NASA GSFC*

10:35 – 11:05 Coffee break

11:05 – 12:00 Session: **Exoplanets I**. Chair: Gijs Mulders
11:05 – 11:30 **Juliette Becker** (University of Wisconsin-Madison; Invited Overview Talk) - *From TESS to Theory: Advancing our understanding of planet formation*
11:30 – 11:45 **Madison Brady** (University of Chicago) - *Using TESS targets to characterize the compositions of nearby M dwarf planets*
11:45 – 12:00 **Angie Wolfgang** (Eureka Scientific) - *The Magellan-TESS Survey: Holistic characterization of small planets*

12:00 – 1:30 Lunch (on own)

1:30 – 2:45 Session: **Exoplanets II**. Chair: Juliette Becker
1:30 – 1:45 **Mike Lund** (Caltech/IPAC-NExScI) - *ExoFOP: Evolving Support for TESS and Future Missions*
1:45 – 2:00 **Pierre-Alexis Roy** (Université de Montréal) - *A paradigm shift in our understanding of sub-Neptunes: JWST transmission spectroscopy reveals that hydrogen and volatiles are mixed in a miscible envelope on sub-Neptunes*
2:00 – 2:15 **Benjamin Rackham** (MIT) - *Towards robust corrections for stellar contamination in transmission spectra using HST, JWST, and TESS: first results from two Legacy programs*
2:15 – 2:30 **Johanna Teske** (Carnegie Earth & Planets Lab) - *Atmospheres of Small TESS Planets from the JWST COMPASS (Compositions of Mini-Planet Atmospheres for Statistical Study) Program*
2:30 – 2:45 **David Armstrong** (University of Warwick) - *A statistical sample of planets in and near the Neptunian Desert revealed with HARPS RVs*

2:45 – 3:45 Poster Session 1

3:45 – 5:00 Session: **Exoplanets III**. Chair: Sara Seager
3:45 – 4:00 **Emma Nabbie** (USQ) - *Transit Timing Variations of TESS Multi-Planet Systems: A Catalog From the First Five Years*
4:00 – 4:15 **Joey Rodriguez** (MSU) - *Hot Jupiters With Friends as a Guide for Planetary Evolution*
4:15 – 4:30 **Noah Vowell** (MSU) - *Using transiting brown dwarfs to define the planetary mass limit*
4:30 – 4:45 **Elisabeth Newton** (Dartmouth College) - *Exoplanets in THYME*
4:45 – 5:00 **Alex Polanski** (University of Kansas) - Unveiling Orbital Architectures with the TESS-Keck Survey

TUESDAY, JULY 30

9:00 – 10:25 Session: **Stellar Astrophysics I**. Chair: Conny Aerts

9:00 – 9:25 **Dan Hey** (UH; Invited Overview Talk) - *Asteroseismology with TESS: Insights from the first six years*

9:25 – 9:40 **Ward Howard** (UCB) - *Unlocking the potential of TESS to constrain the radiation environment of every M dwarf with simultaneous 20 s NUV and red optical flare observations*

9:40 – 9:55 **Luke Bouma** (Caltech) - *Transient corotating gas clumps around young low-mass stars*

9:55 – 10:10 **Catherine Espaillat** (BU) - *Catching protoplanetary disk dissipation with TESS and JWST*

10:10 – 10:25 **Aylin Garcia Soto** (Dartmouth College) - *Contemporaneous observations of H_alpha, H_beta and H_gamma luminosities and photometric amplitudes for M dwarfs*

10:25 – 10:55 Coffee break

10:55 – 11:55 Session: **Stellar Astrophysics II**. Chair: JJ Hermes

10:55 – 11:10 **Yuto Kajikiya** (Tokyo Institute of Technology) - *Simultaneous photometry and spectroscopy of stellar flare on M dwarf YZ CMi using TESS and Seimei*

11:10 – 11:25 **Rafael García** (DAp/CEA-Saclay**)** - *Measuring rotation periods and stellar oscillations in red giants with TESS data*

11:25 – 11:40 **Lyra Cao** (Vanderbilt University) - *TESS light curve amplitudes, rotation periods, and star spots in lower main sequence stars*

11:40 – 11:55 **Joel Ong** (UH) - *Asteroseismic identification and characterization of a rapidly rotating engulfment candidate*

11:55 – 1:30 Lunch (on own)

1:30 – 3:00 Session: **Exoplanets IV**. Chair: Hugh Osborn

1:30 – 1:45 **Rachel Fernandes** (Pennsylvania State University) - *Tracing the evolution of short-period exoplanets: Insights from young stellar clusters*

1:45 – 2:00 **Sydney Vach** (USQ) - *The occurrence and evolution of small young planets in comoving populations with TESS*

2:00 – 2:15 **Madyson Barber (**UNC Chapel Hill) - *A 3 Myr transiting planet in the presence of a misaligned transitional disk*

2:15 – 2:30 **Nardiello Domenico** (Università degli Studi di Padova (UNIPD)) - *Young planets with TESS*

2:30 – 2:45 **Louise Dyregaard Nielsen** (Munich University) - *Tracing planet formation with the youngest transiting exoplanet candidate*

2:45 – 3:00 **John Livingston** (ABC/NAOJ) - *Low densities, eccentricities, and entropies in a young, compact multi-planet system*

3:00 – 3:30 Coffee break

3:30 – 5:00 Session: **Data Analysis I**. Chair: Roland Vanderspek

3:30 – 3:45 **Douglas Caldwell** (SETI Institute) - *SPOC light curves, target pixel files, and other goodies in the extended mission*

3:45 – 4:00 **Glen Petitpas** (MIT) - *Updates to QLP and TEV from the TESS science office at MIT*

4:00 – 4:15 **Daniel Muthukrishna** (MIT) - *Modeling and removal of scattered light in TESS full frame images using generative AI*

4:15 – 4:30 **Lionel Garcia** (Flatiron Institute, CCA) - *Detection of transiting exoplanets around active stars with nuance*

4:30 – 5:00 State of the profession talk: **Jonathan Chou** (MIT) – *Mental health in academia*

WEDNESDAY, JULY 31

9:00 – 10:10 Session: **Extragalactic Astrophysics**. Chair: Michael Fausnaugh
9:00 – 9:25 **Ben Shappee** (UH; Invited Overview Talk) - *Transient Explorer Survey Satellite*
9:25 – 9:40 **Rahul Jayaraman** (MIT) - *Using TESS to study optical counterparts to gamma-ray bursts*
9:40 – 9:55 **Derek Buzasi** (Florida Gulf Coast University) - *Searching for GRB precursors with TESS*
9:55 – 10:10 **Armin Rest** (STScI) - *TESS light curves with SYNDIFF*

10:10 – 10:40 Coffee break

10:40 – 11:55 Session: **Extragalactic & Galactic Astrophysics**. Chair: Michael Fausnaugh
10:40 – 10:55 **Qinan Wang** (Johns Hopkins University) - *Searching for early excess of SNe Ia from Kepler and TESS*
10:55 – 11:10 **Kirill Sokolovsky** (University of Illinois Urbana-Champaign) - *TEQUILA SHOTS: An image subtraction pipeline for AGN and transient science with TESS*
11:10 – 11:25 **Rayna Rampalli** (Dartmouth College) - *Wrinkles in time: Tracing spiral arm passages using gyrochronology*
11:25 – 11:40 **Lizhou Sha** (University of Wisconsin-Madison) - *Confirming the tidal tails of the young open cluster Blanco 1 with TESS rotation periods*
11:40 – 11:55 **Christopher Lindsay** (Yale University) - *Asteroseismic modeling of metal-poor, alpha-rich giants in the Halo*

11:55 – 1:30 Lunch (on own)

1:30 – 3:00 Parallel Session 1 (Kresge Little): **Extragalactic Transients Science with TESS,** Organizer: Qinan Wang
1:30 – 1:45 **Rahul Jayaraman** (MIT) - *Enabling multi-messenger astrophysics with TESS: Infrastructure and initial results*
1:45 – 2:00 **Ryan Ridden-Harper** (University of Canterbury) - *Uncovering the dynamic universe with TESS*
2:00 – 2:15 **Daniel Muthukrishna** (MIT) - *Predicting the age of supernovae with recurrent neural networks*
2:15 – 2:30 **Michael Fausnaugh** (TTU) - *Properties and progenitor systems of Type Ia Supernovae observed by TESS*
2:30 – 2:45 **Zachary Lane** (University of Canterbury) - *Photometric and spectroscopic time-series analysis of SN2019vxm*
2:45 – 3:00 **Ryne Dingler** (Texas A&M University) - *A detailed view of relativistic jets: TESS Observations of gamma-ray emitting blazars*

1:30 – 3:00 Parallel Session 2 (Kresge Main): **Cooler Transiting Exoplanets: A long-term vision for TESS**, Organizer: Sam Gill
1:30 – 1:35 Introduction - **Sam Gill** (University of Warwick)
1:35 – 1:50 **Toby Rodel** (Queen's University Belfast) - *Putting a TIaRA on SPOC: long-period planet yields from TESS*
1:50 – 2:05 **Katharine Hesse** (MIT) - *Evolution of the TOI Catalog with the TESS Extended Missions*
2:05 – 2:20 **Victoria DiTomasso** (Center for Astrophysics | Harvard & Smithsonian) - *The Lone Transit: Characterizing a Long-Period Neptune-Sized Exoplanet, HD60779b*
2:20 – 2:35 **Eric Gaidos** (UH) - *Probing the Runaway Greenhouse Limit with Long-Period Planets from TESS*
2:35 – 3:00 **Panel** - **Daniel Bayliss** (University of Warwick), **Hugh Osborn** (University of Bern)**, Amy Tuson** (UMBC/NASA GSFC)**, Diana Dragomir** (UNM)

3:00 – 3:30 Coffee break

3:30 – 5:00 Parallel Session 3 (Kresge Little): **Brown dwarfs from the TESS mission and beyond**, Organizer: Theron Carmichael
3:30 – 3:45 **Jan Subjak** (Center for Astrophysics | Harvard & Smithsonian) - *From giant planet to brown dwarf: evidence for deuterium burning in old age?*
3:45 – 4:00 **Yuchen (Elina) Zhang** (UH) - *Characterizing Old and Young Transiting Brown Dwarfs in the "Mass Desert"*

4:00 – 4:15 **Geza Kovacs** (Konkoly Observatory) - *Detection of Secondary Eclipses in Two Brown Dwarf-hosting Systems in the K2 Fields: Further Support for Over-Luminosities*
4:15 – 4:30 **Lauren Doyle** (University of Warwick) - *The First Spin-Orbit Alignment of an M dwarf-Brown Dwarf System*
4:30 – 4:45 **Akihiko Fukui** (The University of Tokyo) - *TOI-5278B: An Ultrashort-Period, Ultracool Dwarf Transiting an M dwarf*
4:45 – 5:00 **David W. Latham** (Center for Astrophysics | Harvard & Smithsonian) - *Orbits from TRES for two dozen transiting companions near the substellar limit*

3:30 – 5:00 Parallel Session 4 (Kresge Main): **TESS exoplanet demographics**, Organizer: Jessie Christiansen
3:30 – 3:45 **Michele Kunimoto** (UCB) - *LEO-Vetter Demonstration*
3:45 – 4:00 **Steven Giacalone** (Caltech) - *TRICERATOPS Demonstration*
4:00 – 4:05 **Gijs Mulders** (Universidad Adolfo Ibáñez) - *The Occurrence of TESS Super-Earths in Systems with Cold Giant Planets*
4:05 – 4:10 **Jason Eastman** (Center for Astrophysics | Harvard & Smithsonian) - *A homogeneous re-analysis of all Kepler and TESS planet candidates*
4:10 – 4:15 **Sam Grunblatt** (Johns Hopkins University) - *The Population of Planets Transiting Subgiant and Giant Stars Revealed by TESS*
4:15 – 4:20 **Sharon Wang** (Tsinghua University) - *GPASS: Giant Planets Around Small Stars*
4:20 – 4:25 **Li Zeng** (Center for Astrophysics | Harvard & Smithsonian) **–** *ManipulatePlanet - Mathematica Code*
4:25 – 5:00 **Panel – Hugh Osborn** (University of Bern)**, Malena Rice** (Yale University)**, Pierre-Alexis Roy** (Université de Montréal), **Tom Barclay** (NASA GSFC)**, Anne Datillo** (UCSC), **David Ciardi** (Caltech/IPAC-NExScI)

1:30 – 5:00 **Live Helpdesk** – TESS Science Support Center (West lounge seating area)

THURSDAY, AUGUST 1

9:00 – 10:30 Session: **TESS Users Committee.** Chair: Savita Mathur
9:00 – 9:10 **Dan Huber** (UH) - *Introduction*
9:10 – 9:20 **Roland Vanderspek** (MIT) - *Plausible changes in the third extended mission*
9:20 – 9:30 **Luke Bouma** (Caltech) - *Community survey results summary*
9:30 – 9:40 **Allison Youngblood** (NASA GSFC) - *Community science pitch summary*
9:40 – 10:30 **Open discussion**

10:30 – 11:00 Coffee break

11:00 – 11:55 Session: **Solar System Science**. Chair: Malena Rice
11:00 – 11:25 **Deb Woods** (MIT/Lincoln Labs; Invited Overview Talk) - *Contributions of TESS to Solar System Science*
11:25 – 11:40 **Nora Takacs** (Konkoly Observatory) - *Exploring the physical properties of Jupiter Trojans and Hildas with the TESS space telescope*
11:40 – 11:55 **Ben Cassese** (Columbia University) - *Initial results of a TESS outer solar system survey*

11:55 – 1:30 Lunch (on own)

1:30 – 2:45 Session: **Exoplanets V**. Chair: Andras Pal
1:30 – 1:45 **Nicholas Saunders** (UH) - *Evolved and aligned: Newly discovered TESS hot Jupiters demonstrate rapid obliquity damping after the main sequence*
1:45 – 2:00 **Alexander Venner** (USQ) - *Seeing beyond the shadows: Accessing TESS system architectures with astrometry*
2:00 – 2:15 **Xianyu Wang** (Indiana University) - *Prevalent spin-orbit alignment of warm Jupiters in single-star systems: evident even around hot stars*
2:15 – 2:30 **Steven Giacalone** (Caltech) - *The origins of close-In brown dwarfs from the stellar obliquity distribution*

2:30 – 2:45 **Mutian Wang** (Nanjing University) - *Photo-dynamical analysis of circumbinary multi-planet system TOI-1338: a fully coplanar configuration with a puffy planet*

2:45 – 3:45 Poster Session 2

3:45 – 5:00 Session: **Stellar Astrophysics III**. Chair: Marc Hon
3:45 – 4:00 **Zitao Lin** (Tsinghua University) - *Revealing imprints of tidal evolution and radius inflation with TESS transiting brown dwarfs*
4:00 – 4:15 **Dominick Rowan** (The Ohio State University) - *Measuring fundamental stellar parameters with eclipsing binaries*
4:15 – 4:30 **Masafumi Niwano** (Tokyo Tech) - *Possible anti-correlations between pulsation amplitudes and the disk growth of Be stars in giant-outbursting Be X-ray binaries*
4:30 – 4:45 **Linhao Ma** (Princeton University) - *Variability of blue supergiants in the LMC with TESS*
4:45 – 5:00 **Shishir Dholakia** (USQ) - *Catalog of stellar companions from pulsation timing in first four years TESS*

FRIDAY, AUGUST 2

9:00 – 10:15 Session: **Data Analysis II.** Chair: Michelle Kunimoto
9:00 – 9:15 **Te Han** (UC Irvine) - *TESS-Gaia Light Curve (TGLC): high-precision, dilution-free TESS FFI light curves*
9:15 – 9:30 **Aviv Ofir** (Weizmann Institute of Science) - *Systematic-errors reduction in TESS and JWST data*
9:30 – 9:45 **Ryan Ridden-Harper** (University of Canterbury) - *TESSreduce: Extracting high quality calibrated PSF photometry from TESS*
9:45 – 10:00 **David Rapetti** (USRA/NASA Ames) - *Comparing and automatically optimizing the performance of systematic error correctors for TESS light curves*
10:00 – 10:15 **Tyler Pritchard** (UMD/NASA GSFC) - *TESSVectors: easy spacecraft based de-trending for the community*

10:15 – 10:45 Coffee break

10:45 – 12:00 Session: **Synergies I**. Chair: Nicole Schanche
10:45 – 11:00 **Vikash Singh** (INAF - Osservatorio Astrofisico di Catania) - *CHEOPS-TESS occultations of KELT-20 b*
11:00 – 11:15 **Christopher Mann** (NRC-HAA) - *NEOSSat and ORACLE: Unshrouding TESS's most challenging exoplanet candidates*
11:15 – 11:30 **Conny Aerts** (KU Leuven) - *TESSting Gaia's discovery of ~60,000 new nonradial pulsators: a novel pathway to ensemble asteroseismology of massive stars*
11:30 – 11:45 **Mayuko Mori** (Astrobiology Center) - *Multi-band starspot characterization by synergy of TESS and ground-based telescopes.*
11:45 – 12:00 **Daniel Huber** (UH) - *TESS 20-Second data as a pathfinder for the Habitable Worlds Observatory*

12:00 – 1:30 Lunch (on own)

1:30 – 3:00 Session: **Exoplanets VI**. Chair: Andrew Vanderburg
1:30 – 1:45 **Mallory Harris (**UNM) - *Microlensing exoplanet candidate with TESS*
1:45 – 2:00 **Sydney Jenkins** (MIT) - *JWST follow-up of first TESS planet transiting a white dwarf*
2:00 – 2:15 **Bob Aloisi** (University of Wisconsin - Madison) - *A search for habitable-zone planets and their precursors orbiting white dwarf stars*
2:15 – 2:30 **Fintan Eeles-Nolle** (University of Warwick) - *Stellar multiplicity in and around the Neptunian desert*
2:30 – 2:45 **Tyler Fairnington (**USQ**)** - *A formation dichotomy revealed in the eccentricity distribution of TESS small planets*
2:45 – 3:00 **Ashley Chontos** (Princeton University) - *13 New TESS Planets and Homogeneous Properties for 21 Evolved Systems*

3:00 – 3:30 Coffee break

3:30 – 5:00 Session: **Synergies II**. Chair: Avi Shporer

3:30 – 3:45 **Billy Edwards** (SRON, Netherlands Institute for Space Research) - *Population studies of exoplanet atmospheres with ESA-Ariel: Current approach to target selection and the impact of TESS*

3:45 – 4:00 **Marc Pinsonneault (**Ohio State University**)** - *Red giant asteroseismology in TESS and Roman*

4:00 – 4:15 **Hugh Osborn** (University of Bern) - *Unlocking long-period planets with CHEOPS: Detection of a resonant sextuplet of sub-Neptunes orbiting HD110067*

4:15 – 4:30 **Giampaolo Piotto** (Universita' di Padova) - *The PLATO Mission – An overview*

4:30 – 4:45 **Yoshi Eschen** (University of Warwick) - *Viewing the PLATO field through the lenses of TESS*

4:45 – 5:00 **Ben Hord** (NASA GSFC) - *NASA's Pandora SmallSat Mission: Multiwavelength characterization of exoplanets and their host stars*