

# Tansu Daylan

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## Education

- 2018, Ph.D. in Physics, Harvard University, Cambridge, MA, US
- 2015, M.A. in Physics, Harvard University, Cambridge, MA, US
- 2013, B.S. in Physics (double major), Middle East Technical University (METU), Ankara, Turkey
- 2012, B.S. in Electrical and Electronics Engineering, METU, Ankara, Turkey
- 2008, Robert College, Istanbul, Turkey

## Positions

- Since June 2021, Visiting Postdoctoral Associate, Princeton University, Princeton, NJ, US
- Since June 2021, TESS Postdoctoral Associate, MIT, Cambridge, MA, US
- 2018-2021, Postdoctoral Kavli Fellow, MIT, Cambridge, MA, US
- 2013-2018, Research/Teaching Fellow, Harvard University, Cambridge, MA, US
- 2011-2013, Teaching Assistant, METU, Ankara, Turkey

## Research Statement

I have had the exciting opportunity to make significant contributions in a broad range of research fields, i.e., exoplanets, cosmology, astro-particle physics, and astro-statistics.

Record of my research output: [NASA ADS](#), [Google Scholar](#), and [ORCID](#)

**Authored 60 research publications, number of citations: 1750, h-index: 21** (retrieved from NASA ADS)

PhD Thesis: A Transdimensional Perspective on Dark Matter (2018), advisor: Douglas P. Finkbeiner

## Selected Research Achievements

- Led the discovery of four small exoplanets transiting a bright, Sun-like star, HD 108236 (Daylan+2021),
- Significantly contributed to the discovery or characterization of more than 40 exoplanets (e.g., Daylan+2019),
- Co-developed a widely-used inference framework to model stars and exoplanets (Günther&Daylan2020),
- Led the group vetting of the NASA TESS mission, which has delivered more than 2100 exoplanet candidates,
- Built a method to probe the small-scale structure of dark matter using gravitational lensing to test the  $\Lambda$ CDM model (Daylan+2018),
- Constructed a novel statistical method to perform transdimensional inference (Daylan+2017),
- Revealed a potential link between the anomalous gamma-ray emission from the inner galaxy and WIMP annihilation (Daylan+2016).

## Awards, Honors and Achievements

- Selected into the the NASA FDL research team (2020)
- MIT Kavli Fellowship (2018)
- MIT Translational Fellowship (2018)
- AAS Chambliss Honorable Mention (2015)
- WorldQuant Fellowship (2014)
- Harvard Purcell Fellowship (2013)
- Selected among the young researchers to attend the Lindau Nobel Laureates Meeting (2012)
- Featured by the Scientific American in the “30 under 30” list (2012)
- Ranked 10<sup>th</sup> among 1.5 million participants (i.e., 99.999th percentile) in the National University Entrance Exam (2008)
- Turkish Republic Prime Ministry Great Achievement Scholarship (2008-2012)
- Turkish Education Foundation Superior Success Scholarship (2008-2012)
- Fen Bilimleri Fellowship (2008)
- Highest GPA in the class (2008 and 2009)
- Winner of Bilkent University Undergraduate Physics Research Competition (2013)
- Honorable Mention Award for EEE graduation project of autonomous construction robot design (2012)

## Selected awarded research grants as PI

- \$69,970.71, **Hunting For Black Holes With TESS**, 2021, TESS Guest Investigator Program, Cycle 4, ID G04190.
- \$5,000, **Robust Census of Long-Period Solar System and Interstellar Objects with LSST**, 2021-39, LSSTC ES Program
- \$5,000, **A Cloud-accelerated hunt for black holes with TESS**, 2001, Azure cloud computing, CSML, Princeton University

## Awarded telescope resources as PI

- 2-minute cadence targets. **Mapping Star Spots Using TESS**, TESS Guest Investigator (GI) Program, Cycle 4, ID G04206.
- 2-minute cadence targets. **Searching For Compact Objects With Stellar Companions Using TESS**, TESS GI, Cycle 3, ID G03254.
- 1.5 nights. **Revealing the dynamical history of an exceptional multiplanetary system with small transiting planets and a bright host**, Magellan Clay/PFS, 2021A.
- 1 night. **Probing the spin-orbit alignment of a rich and compact multiplanetary system TOI-1233**, Magellan Clay/PFS, 2022A.

## Selected awarded grants as non-PI

- \$492,467 **Planet Formation Revealed by a Uniform Analysis of all Giant Planets**, 2021, NASA XRP, 21-XRP21-0135, PI: Quinn
- \$67,000, **Disintegrating Rocky Bodies Transiting White Dwarfs: The Key To Understanding Exoplanet Compositions**, 2021, TESS Guest Investigator Program, Cycle 4, ID G04200, PI: Vanderburg.
- \$50,000, **A Systematic Study To Characterize Rapid Optical Variability Of Agn And Search For Quasi-Periodic Oscillations**, 2021, TESS Guest Investigator Program, Cycle 4, ID G04215, PI: Pasham.
- \$50,000, **A Systematic Study Of TESS Orbital Phase Curves**, 2021, TESS Guest Investigator Program, Cycle 4, ID G04096, PI: Shporer.
- **Thermal Emission from the First Planet Transiting a White Dwarf**, 2021, JWST Proposal, Cycle 1, ID 2507, PI: Vanderburg.
- **Leveraging The Synergy Between TESS And Speculoos: Hunting For Exoplanets Around The Nearest Late M Dwarfs**, 2020, TESS Guest Investigator Program, Cycle 3, ID G03279, PI: Guenther.
- \$44,999.55, **Disintegrating Rocky Bodies Transiting White Dwarfs: The Key To Understanding Exoplanet Compositions**, 2020, TESS Guest Investigator Program, Cycle 3, ID G03207, PI: Vanderburg.
- \$50,000, **A Systematic Study Of TESS Orbital Phase Curves**, 2020, TESS Guest Investigator Program, Cycle 3, ID G03232, PI: Shporer.
- \$43,000, **Disintegrating Rocky Bodies Transiting White Dwarfs: The Key To Understanding Exoplanet Compositions**, 2019, TESS Guest Investigator Program, Cycle 2, ID G022077, PI: Vanderburg.
- \$89,000, **Atmospheric characterization of two temperate mini-Neptunes formed in the same protoplanetary nebula**, 2019, HST Proposal, Cycle 27, ID 15814, PI: Mikal-Evans.

## Selected teaching experience

- Spring 2021, MIT Kaufman Teaching Certificate Program, MIT, Cambridge, MA, US
- Spring 2021, Guest Lecturer, Spec Seminar: Planetary Science, MIT, Cambridge, MA, US
- Fall 2020, Guest Lecturer, Selected Topics in Graduate Physics, 8.398, MIT, Cambridge, MA, US
- Summer 2019, Lecturer, "Quantum to Cosmos: Ideas and Applications", Research summer school, Istanbul, Turkey
- Spring 2019, Guest Lecturer, Artificial Intelligence for TESS Applications, 12.S680, MIT, Cambridge, MA, US
- Spring 2019, Guest Lecturer, Undergraduate Cosmology, Astro 130, Harvard University, Cambridge, MA, US
- Fall 2016, Teaching Fellow, Graduate Cosmology, Physics 212, Harvard University, Cambridge, MA, US
- Spring 2015, Teaching Fellow, The Energetic Universe, SPU 19, Harvard University, Cambridge, MA, US
- Spring 2013, Fall 2012, Spring 2012, Teaching Assistant, Modern Physics, PHYS207, METU, Ankara, Turkey

## Professional activities

- President (2020-2021) and Human Affairs Chair (2019-2020) of the MIT Postdoctoral Association
- TESS Science Office exoplanet vetting lead (since 2018)
- NOIRLab Telescope Allocation Committee member 2020A, 2020B, 2021A, and 2021B
- Reviewer for NASA XRP, HST GO, NASA FDL and NASA FINESST proposals
- Referee for the AAS journals AJ, ApJ, and ApJS
- Session Chair and/or Organizer in AAS235, AAS237, and TESS Science Conference II
- Editorial board member for the Turkish Journal of Physics (since 2019)
- LOC member for TESS Science Conference I and "Gravitational Waves: New Challenges and Opportunities" (2019)
- Organizer of the MIT Exoplanet Journal Club (2018-2020)
- Member of the science council for the East Anatolian Observatory (since 2019)
- Research mentor for the Harvard-MIT Science Research Mentoring Program (2019-2020)
- Mentor, American Physical Society (APS) National Mentoring Community (2020-), MIT Mentor Advocate Partnership (2018-2019)
- Observing experience with DECam on the 4m Blanco Telescope at CTIO and PFS on the 6.5m Clay (Magellan II) Telescope at LCO.
- Extensive data analysis (machine learning and Bayesian inference) experience with astrophysical datasets collected by space and ground-based missions such as Fermi-LAT, Chandra, HST, SDSS, TESS, Kepler, and AMS-02.

## Selected Software Developed

- **Probabilistic Cataloger (PCAT)**, Daylan et al. 2017, Daylan et al. 2018, a transdimensional, hierarchical, and Bayesian framework to sample from the posterior probability distribution of a metamodel, i.e., union of models with different dimensionality, <https://github.com/daylan/pcat>
- **Allesfitter**, Günther & Daylan, 2019, widely used software to model exoplanets and stars in time-series data, <https://www.allesfitter.com>

## Publications

### Peer-reviewed papers (in review or published)

#### Lead author

1. Daylan et al. **TESS discovery of a super-Earth and three sub-Neptunes hosted by the bright, Sun-like star HD 108236**  
AJ, 161:85, 2021, doi:10.3847/1538-3881/abd73e, arXiv:2004.11314
2. Daylan et al. **TESS observations of the WASP-121 b phase curve**  
AJ, 161:131, 2021, doi:10.3847/1538-3881/abd8d2, arXiv:1909.03000
3. Daylan et al. **The Small-scale Structure in Strongly Lensed Systems via Transdimensional Inference**  
ApJ, 854:141, 2018, doi:10.3847/1538-4357/aaaa1e, arXiv:1706.06111
4. Daylan et al. **Inference of Unresolved Point Sources at High Galactic Latitudes Using Probabilistic Catalogs**  
ApJ, 839:4, 2017, doi:10.3847/1538-4357/aa679e, arXiv:1607.04637
5. Daylan et al. **The characterization of the gamma-ray signal from the central Milky Way: A case for annihilating dark matter**  
Physics of the Dark Universe, 12:1-23, 2016, doi:10.1016/j.dark.2015.12.005, arXiv:1402.6703

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#### Second or third author

6. Kunimoto, Daylan, et al. **The TESS Faint Star Search: 1,617 TOIs from the TESS Primary Mission**  
Submitted, 2021, arXiv:2112.02176
7. Günther and Daylan. **Allesfitter: Flexible Star and Exoplanet Inference From Photometry and Radial Velocity**  
ApJS, 254:13, 2021, doi:10.3847/1538-4365/abe70e, arXiv:2003.14371
8. Wong, Shporer, Daylan, et al. **Systematic Phase Curve Study of Known Transiting Systems from Year 1 of the TESS Mission**  
AJ, 160:155, 2020, doi:10.3847/1538-3881/ababad, arXiv:2003.06407
9. Badenas-Agusti, Günther, Daylan, et al. **HD 191939: Three Sub-Neptunes Transiting a Sun-like Star Only 54 pc Away**  
AJ, 160 113, 2020, doi:10.3847/1538-3881/aba0b5, arXiv:2002.03958
10. Feder, Portillo, Daylan, et al. **Multiband Probabilistic Cataloging: A Joint Fitting Approach to Point Source Detection and Deblending**  
AJ, 159:163, 2020, doi:10.3847/1538-3881/ab74cf, arXiv:1907.04929
11. Portillo, Lee, Daylan, et al. **Improved Point-source Detection in Crowded Fields Using Probabilistic Cataloging**  
AJ, 154:132, 2017, doi:10.3847/1538-3881/aa8565, arXiv:1703.01303
12. Butler, Feder, Daylan, et al. **Measurement of the Relativistic Sunyaev-Zeldovich Corrections in RX J1347.5-1145**  
Submitted, 2021, arXiv:2110.13932

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#### Core author (i.e., significant contribution to analyses, figures, or sections in addition to editing of the manuscripts.)

13. Smith et al. **GRB 191016A: A Long Gamma-Ray Burst Detected by TESS**  
ApJ, 911:1, 2021, doi:10.3847/1538-4357/abe6a2, arXiv:2102.11295
14. Crossfield et al. **Phase Curves of Hot Neptune LTT 9779b Suggest a High-Metallicity Atmosphere**  
ApJL, 903:L7, 2020, doi:10.3847/2041-8213/abbc71, arXiv:2010.12745
15. Dragomir et al. **Spitzer Reveals Evidence of Molecular Absorption in the Atmosphere of the Hot Neptune LTT 9779b**  
ApJL, 903:L6, 2020, doi:10.3847/2041-8213/abbc70, arXiv:2010.12744
16. Vanderburg et al. **A giant planet candidate transiting a white dwarf**  
Nature, 585, 363-367, 2020, doi:10.1038/s41586-020-2713-y, arXiv:2009.07282
17. Günther et al. **Complex Modulation of Rapidly Rotating Young M Dwarfs: Adding Pieces to the Puzzle**  
Submitted, 2020, arXiv:2008.11681
18. Kane et al. **Transits of Known Planets Orbiting a Naked-Eye Star**  
AJ, 160:129, 2020, doi:10.3847/1538-3881/aba835, arXiv:2007.10995
19. Basturk et al. **A holistic and probabilistic approach to the ground-based and spaceborne data of HAT-P-19 system**  
MNRAS, 496:4174, 2020, doi:10.1093/mnras/staa1758, arXiv:1911.07903
20. Pepper et al. **TESS Reveals HD 118203b to be a Transiting Planet**  
AJ, 159:243, 2020, doi:10.3847/1538-3881/ab84f2, arXiv:1911.05150
21. Wong et al. **Exploring the atmospheric dynamics of the extreme ultra-hot Jupiter KELT-9b using TESS photometry**  
AJ, 160:88, 2019, doi:10.3847/1538-3881/aba2cb, arXiv:1910.01607
22. Yu et al. **Identifying Exoplanets with Deep Learning III: Automated Triage and Vetting of TESS Candidates**  
AJ, 158:25, 2019, doi:10.3847/1538-3881/ab21d6, arXiv:1904.02726
23. Fausnaugh et al. **Early Time Light Curves of 18 Bright Type Ia Supernovae Observed with TESS**  
ApJ, 908:51, 2021, doi: 10.3847/1538-4357/abcd42, arXiv:1904.02171
24. Günther et al. **A Super-Earth and two sub-Neptunes transiting the bright, nearby, and quiet M-dwarf TOI-270**  
Nature Astronomy, page 420, 2019, doi:10.1038/s41550-019-0845-5, arXiv:1903.06107
25. Bouma et al. **WASP-4b Arrived Early for the TESS Mission.**  
AJ, 157:217, 2019, doi:10.3847/1538-3881/ab189f arXiv:1903.02573

26. Günther et al. **Stellar Flares from the First TESS Data Release: Exploring a New Sample of M-dwarfs**  
AJ, 159:60, 2020, doi:10.3847/1538-3881/ab5d3a, arXiv:1901.00443
27. Shporer et al. **TESS Full Orbital Phase Curve of the WASP-18b System**  
AJ, 157:178, 2019, doi:10.3847/1538-3881/ab0f96, arXiv:1811.06020
28. Schlafly et al. **The DECam Plane Survey: Optical Photometry of Two Billion Objects in the Southern Galactic Plane**  
ApJS, 234:39, 2018, doi:10.3847/1538-4365/aaa3e2, arXiv:1710.01309

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**Collaborating author (i.e., based on research work for a collaboration in addition to editing of the manuscripts.)**

29. Silverstein et al. **The LHS 1678 System: Two Earth-Sized Transiting Planets and an Astrometric Companion Orbiting an M Dwarf Near the Convective Boundary at 20 pc**  
Accepted, AJ, 2021, arXiv:2110.12079
30. Huber et al. **A 20-Second Cadence View of Solar-Type Stars and Their Planets with TESS: Asteroseismology of Solar Analogs and a Re-characterization of  $\pi$  Men c**  
Accepted, AJ, 2021, arXiv:2108.09109
31. Trifonov et al. **A pair of warm giant planets near the 2:1 mean motion resonance around the K-dwarf star TOI-2202**  
Accepted, AJ, 2021, arXiv:2108.05323
32. Wells et al. **A large sub-Neptune transiting the thick-disk M4V TOI-2406**  
A&A, 653, A97, 2021, doi:10.1051/0004-6361/202141277, arXiv:2107.14125
33. Wong et al. **Visible-light Phase Curves from the Second Year of the TESS Primary Mission**  
AJ, 162:127, 2021, doi:10.3847/1538-3881/ac0c7d, arXiv:2106.02610
34. Burt et al. **TOI-1231 b: A Temperate, Neptune-Sized Planet Transiting the Nearby M3 Dwarf NLTT 24399**  
AJ, 162:87, 2021, doi:10.3847/1538-3881/ac0432, arXiv:2105.08077
35. Addison et al. **TOI-1431b/MASCARA-5b: A Highly Irradiated Ultra-Hot Jupiter Orbiting One of the Hottest & Brightest Known Exoplanet Host Stars**  
Accepted, AJ, 2021, arXiv:2104.12078
36. Guerrero et al. **The TESS Objects of Interest Catalog from the TESS Prime Mission**  
ApJS 254:39, 2021, doi:10.3847/1538-4365/abefe1, arXiv:2103.12538
37. Hobson et al. **A transiting warm giant planet around the young active star TOI-201**  
AJ, 161:235, 2021, doi:10.3847/1538-3881/abeaa1, arXiv:2103.02685
38. Osborn et al. **A hot mini-Neptune in the radius valley orbiting solar analogue HD 110113**  
MNRAS, 502, 4, 4842-4857, 2021, doi:10.1093/mnras/stab182, arXiv:2101.04745
39. Powell et al. **TIC 168789840: A Sextuply-Eclipsing Sextuple Star System**  
AJ, 161:162, 2021, doi:10.3847/1538-3881/abddb5, arXiv:2101.03433
40. Zhou et al. **Two young planetary systems around field stars with ages between 20-320 Myr from TESS**  
AJ, 161:2, 2020, doi:10.3847/1538-3881/abba22, arXiv:2011.13349
41. Dreizler et al. **The CARMENES search for exoplanets around M dwarfs – LP 714-47b (TOI 442.01): Populating the Neptune desert**  
A&A, 644, A127, doi:10.1051/0004-6361/202038016, arXiv:2011.01716
42. Dai et al. **TKS III: A Stellar Obliquity Measurement of TOI-1726 c**  
AJ 160:193, 2020, doi:10.3847/1538-3881/abb3bd, arXiv:2008.12397
43. Burt et al. **TOI-824 b: A New Planet on the Lower Edge of the Hot Neptune Desert**  
AJ, 160:153, 2020, doi:10.3847/1538-3881/abac0c, arXiv:2008.11732
44. Ikwut-Ukwa et al. **TheK2&TESS Synergy I: Updated Ephemerides and Parameters for K2-114, K2-167, K2-237, & K2-261**  
AJ, 160:209, 2020, doi:10.3847/1538-3881/aba964, arXiv:2007.00678
45. Dalba et al. **The TESS-Keck Survey. I. A Warm Sub-Saturn-mass Planet and a Caution about Stray Light in TESS Cameras**  
AJ, 159:241, 2020, doi:10.3847/1538-3881/ab84e3, arXiv:2003.10451
46. Addison et al. **TOI-257b (HD 19916b): A Warm sub-Saturn on a Moderately Eccentric Orbit Around an Evolved F-type Star**  
MNRAS, 502, 3, 3704-3722, 2021, doi:10.1093/mnras/staa3960, arXiv:2001.07345
47. Gilbert et al. **The First Habitable Zone Earth-sized Planet from TESS. I: Validation of the TOI-700 System**  
AJ, 160:116, 2020, doi:10.3847/1538-3881/aba4b2, arXiv:2001.00952
48. Shporer et al. **GJ 1252 b: A 1.2  $R_{\oplus}$  planet transiting an M3-dwarf at 20.4 pc**  
ApJL, 890:L7, 2020, doi:10.3847/2041-8213/ab7020, arXiv:1912.05556
49. Jordan et al. **TOI-677 b: A Warm Jupiter ( $P=11.2d$ ) on an eccentric orbit transiting a late F-type star**  
AJ, 159:145, 2020, doi:10.3847/1538-3881/ab6f67, arXiv:1911.05574
50. Dawson et al. **TOI-216b and TOI-216c: Two warm, large exoplanets in or slightly wide of the 2:1 orbital resonance**  
AJ, 158:65, 2019, doi:10.3847/1538-3881/ab24ba, arXiv:1904.11852
51. Espinoza et al. **HD 213885b: A transiting 1-day-period super-Earth with an Earth-like composition around a bright ( $V = 7.9$ ) star unveiled by TESS**  
MNRAS, 491:2982, 2020, doi:10.1093/mnras/stz3150, arXiv:1903.07694
52. Rodriguez et al. **An Eccentric Massive Jupiter Orbiting a Subgiant on a 9.5-day Period Discovered in the Transiting Exoplanet Survey Satellite Full Frame Images**  
AJ, 157:191, 2019, doi:10.3847/1538-3881/ab11d9, arXiv:1901.09950

53. Quinn et al. **Near-resonance in a system of sub-Neptunes from TESS**  
AJ, 158:177, 2019, doi:10.3847/1538-3881/ab3f2b, arXiv:1901.09092

#### Proceedings

54. Johnson, Sundaresan, Daylan, et al. **RotNet: Fast and Scalable Estimation of Stellar Rotation Periods Using Convolutional Neural Networks**  
NeurIPS 2020, Vancouver, Canada, 2020, arXiv:2012.01985
55. S. Schael et al. **Precision measurements of the electron spectrum and the positron spectrum with AMS**  
ICRC 2013, Rio De Janeiro, Brazil, 2013
56. J. Casaus et al. **Determination of the positron anisotropy with AMS**  
ICRC 2013, Rio De Janeiro, Brazil, 2013
57. V. Choutko et al. **Precision Measurement of the Cosmic Ray Helium Flux with AMS Experiment**  
ICRC 2013, Rio De Janeiro, Brazil, 2013
58. S. Haino et al. **Precision measurement of the proton flux with AMS**  
ICRC 2013, Rio De Janeiro, Brazil, 2013
59. A. Oliva et al. **Precision Measurement of the Cosmic Ray Boron-to-Carbon Ratio with AMS**  
ICRC 2013, Rio De Janeiro, Brazil, 2013
60. B. Bertucci et al. **Precision measurement of the  $e^+ + e^-$  spectrum with AMS**  
ICRC 2013, Rio De Janeiro, Brazil, 2013

## Research mentoring experience

- Graduate student: Mariona Badenas-Agusti (MIT), Emma Chickles (Wellesley→MIT), Lindsey Gordon(Wellesley→ UMinnesota)
- Undergraduate student: Richard Feder-Staehle (Harvard→Caltech)
- High school research interns: Rohan Subramani, Ashley Davidson, Kartik Pinglé, and Jasmine Wright

## Affiliations

- Junior Member, International Astronomical Union (IAU), since 2020
- American Physical Society, since 2016
- American Astronomical Society, since 2014
- Sigma  $\chi$  Society, since 2014
- TESS Atmospheric Characterization Working Group, since 2019
- TESS Follow-up Working Group, since 2019
- TESS Objects of Interest Working Group, since 2018
- Associate member, CERN, 2011-2013
- AMS-02 Collaboration, 2011-2013

## Selected Invited Seminars and Colloquia

- *A deep survey of transiting exoplanets in the TESS Full Frame Images*, Caltech/JPL, Remote, 30 August 2021
- *A Compute-Intensive Exploration and Characterization of Our Celestial Wonders: Dark Matter and Exoplanets*, Washington University, Remote, 27 April 2021
- *A Compute-Intensive Exploration and Characterization of Our Celestial Wonders: Dark Matter and Exoplanets*, University of Florida, Remote, 30 March 2021
- *Discovery of the HD 108236 multiplanetary system with a bright Sun-like star*, Ohio State University, Remote, 26 January 2021
- *Taking a census of dark matter substructure via transdimensional gravitational imaging*, Stanford University, Remote, 15 December 2020
- *Recharacterization of the atmosphere of WASP-121b*, University of Florida, Remote, 9 April 2020
- *Hot Jupiters and the TESS phase curve of WASP-121b*, Yale University, New Haven CT, 19 November 2019
- *TESS phase curve of WASP-121b*, University of Arizona, Tucson AZ, 30 October 2019
- *Probing the small-scale structure in strong lenses with PCAT*, Caltech/JPL, Pasadena CA, 4 March 2019
- *Inner Milky Way Gamma Ray Excess*, Cape Cod Astronomical Society, South Yarmouth MA, 5 January 2017

## Selected Contributed Talks

- *TOI 1233: A quartet of exoplanets discovered by TESS*, TESS Science Meeting 20, Remote, 11 June 2020
- *TESS observations of the WASP-121b phase curve*, AAS235, Honolulu HI, 5 January 2020
- *TESS phase curve of WASP-121b*, BAESM, Cambridge MA, 5 April 2019
- *Recharacterization of previously known exoplanets in multi-sector TESS data*, AAS233, Seattle WA, 6-10 January 2019
- *PSF fitting with the TESS data*, TESS Science Meeting 15, Cambridge MA, 6 August 2018
- *Probing faint gamma-ray point sources in the inner Milky Way using PCAT*, TeVPA2017, Columbus OH, 09 August 2017
- *Probing the GeV Excess using PCAT*, IDM2016, Sheffield UK, 18 July 2016
- *Inference of Dim Gamma-Ray Point Sources Using PCAT*, Dark Matter and Gamma Rays 2015, Obergurgl Austria, 09 December 2015
- *Contribution of Dark Matter annihilations to the low-redshift metagalactic ionization rate*, DPF2015, Ann Arbor MI, 06 August 2015
- *Can MSPs account for the gamma-ray excess in the inner Milky Way?*, EWASS2015, Tenerife Spain, 25 June 2015
- *Scrutinizing the Diffuse Gamma-Ray Emission in the Inner Galaxy*, TeVPA2014, Amsterdam Netherlands, 26 June 2014
- *The Characterization of the Gamma-Ray Signal from the Central Milky Way*, Fermi Summer School at University of Delaware, Lewes DE, 31 May 2014
- *Anomalous Gamma-Ray Emission from the Inner Galaxy*, Harvard University, Cambridge MA, 07 May 2014
- *Photon Reconstruction In Calorimetric Mode*, AMS Collaboration Meeting at CERN, Geneva Switzerland, 14 February 2013

## Selected Poster Presentations

- *Recharacterization of previously known exoplanets in multi-sector TESS data*, Kepler Science Conference V, Glendale, CA, 4-8 March 2019
- *Scrutinizing the unresolved x-ray background in the CDFS field via transdimensional sampling*, the 16<sup>th</sup> AAS HEAD Meeting, Sun Valley, ID, 20-24 August 2017
- *Inference of Dim Gamma-Ray Point Sources Using Probabilistic Catalogs*, 6<sup>th</sup> Fermi Symposium, Arlington, VA, 08 November 2015
- *Contribution of GeV Scale Dark Matter Annihilations to the Cosmic Ultraviolet Background*, the 225<sup>th</sup> AAS Meeting, Seattle, WA, 06 January 2015
- *GeV excess electrons upscattering the CMB: a possible resolution to the "Photon Underproduction Crisis"*, 5<sup>th</sup> Fermi Symposium, Nagoya, Japan, 20 October 2014
- *The Characterization of the Gamma-Ray Signal from the Central Milky Way*, Sackler Conference, Cambridge, MA, 19 May 2014

## Selected Science Outreach

- Lecturer, The Project Science Voyagers, (2016-2018, addressed ~30,000 high school students)

- Lecturer, Turkish Ministry of Education e-conference, (2018, addressed ~9,000 high school students)
- Lecturer, Astronomy in Schools (addressed ~1500 high school students)
- Mentor, First Lego League
- Over 10 invited appearances on science outreach podcasts and interviews
- Over 100 science outreach talks to universities and high schools
- Author, Science & Utopia and Tree of Evolution
- Contributor, Cambridge Explores the Universe, CFA, Cambridge, April 2016
- Contributor, Ask a Scientist, Cambridge Science Festival, Cambridge, April 2016
- Contributor, Sky & Space Day, Cambridge Science Festival, Cambridge, April 2015
- Lecturer, Beacon Hill Seminars, Cambridge, MA, (2014-2016)
- Lecturer, Science In The News Public Science Lectures, Cambridge, MA, (2014-2016)
- Author, Harvard Science In The News, 2014
- Lecturer, "There is a Scientist In My Classroom" Project, Cambridge, MA, 2013
- Organizer, Mobile CERN exhibition, METU, Ankara, Turkey, 2012

## Coding

- Unix-like operating systems, Python, IDL, C++, MATLAB, Mathematica
- TensorFlow, Numpy, Numba, PyCUDA
- Relational databases, SQL
- Jekyll, HTML5, JavaScript, CSS

## Selected Workshops, Schools and Conferences Attended

- January 2020, Inclusive Teaching Workshop, Cambridge, MA
- 27 May - 06 June 2014, Fermi Summer School 2014, Lewes, DE
- 28 May - 01 June 2013, Recent Developments in High Energy Physics and LHC, METU NCC, Cyprus
- 01 - 06 July 2012, Lindau Nobel Laureates Meeting, Lindau, Germany
- June - August 2011, Summer school on particle physics, CERN, Geneva, Switzerland
- June 2010, Summer school on nonrelativistic quantum mechanics, Bilkent University, Ankara, Turkey
- June - July 2007, Summer Research Program, Koç University, Istanbul, Turkey

## Personal interests

- Lifelong aviator, holding a Private Pilot License since 2012
- Amateur radio operator, holding a ham radio license
- Partner dances: Tango and Bachata