Paper ID: 65011
interactive
student

IAF SYMPOSIUM ON ONGOING AND NEAR FUTURE SPACE ASTRONOMY AND SOLAR-SYSTEM SCIENCE MISSIONS (A7)
Technology Needs for Future Missions, Systems, and Instruments (3)

Author: Mr. Malik Bossett
Northern Arizona University, United States, bossettmalik@gmail.com

Prof. Tyler Robinson
Northern Arizona University, United States, tyler.robinson@nau.edu
Mr. Will Oldroyd
Northern Arizona University, United States, willoldroyd@gmail.com

HUNTING FOR EXOPLANETS WITH TESS AND BATMAN

Abstract

Worlds orbiting other stars, exoplanets, are currently being discovered at a staggering rate. To aid with these efforts, we are developing a new tool to search for the hidden signatures of planets orbiting other stars. These worlds are the target of NASA's Transiting Exoplanet Survey Satellite (TESS), a state-of-the-art space telescope that is systematically scanning the entire sky, looking at hundreds of thousands of stars for micro-eclipses caused when a world transits across the disk of a distant star. Our new tool uses models of these transits, created using BAsic Transit Model cAlculatioN (BATMAN), and automatically compares them with light from stars observed by TESS and reports when it finds a match. We present preliminary results that confirm detections of known exoplanets using our tool and discuss ideas for applying our model to a larger dataset of TESS observations. We believe our tool will help aid in the discovery of more exoplanets with future space telescopes such as the James Webb Telescope, aid in the search for life outside the solar system, and potentially find new worlds that can be habitable for humans in the future.