

51st IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) –
The Next Steps (A4)
Late breaking abstracts (LBA)

Author: Dr. Daniel Giles
SETI Institute, United States, dgiles@seti.org

SEARCHING FOR TECHNOSIGNATURES IN ANOMALOUS TESS LIGHT CURVES: DATABASE
AND FOLLOW-UP TECHNIQUES

Abstract

The volume of data collected by astronomical surveys may hide unknown physics as anomalous patterns yet to be discovered. We present here the progress of our pipeline to characterize the most anomalous data in the Transiting Exoplanet Survey Satellite (*TESS*) full frame images. *TESS* has collected photometric data from nearly the entire sky, resolving millions of individual targets at half-hour cadence. A star's light curve can represent a diverse range of astrophysical phenomena, from exoplanetary transits, to stellar outbursts, to as yet unclassified behaviors. Of particular interest, if civilizations in the galaxy have developed technology like large artificial structures (e.g., Dyson swarms; Dyson 1960) we may detect these technosignatures which could outlive the civilizations themselves.

We have developed a suite of tools and techniques to manually vet the most anomalous sources in *TESS* for sectors 1-26 with an eye toward detecting alien megastructures.