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SETI 1: SETI Science and Technology (1)

Author: Mr. Nick Tusay
Pennsylvania State University, United States, tusay@psu.edu

SEARCHING FOR GRAVITATIONAL LENS PROBES AND ANALYSIS OF TABBYS STAR
OBSERVATIONS USING TURBOSETI SOFTWARE.

Abstract

KIC8462852, also known as Boyajian's Star or Tabby's Star, has been an interesting source for astronomical observation since its discovery in the Kepler data in 2016. Four observations were conducted in late 2016 and early 2017 using the Breakthrough Listen (BL) instrumentation at Green Bank Telescope (GBT) to explore the potential for an artificial origin to the star's dimming. These observations were taken from L through Ku band, and included much longer integrations than is typical for SETI searches, making these some of the most sensitive SETI measurements ever performed. Although the artificial nature of this star's dimming is currently disfavored, the analysis we develop for this star can be extended to other sources. As a separate project undertaken by the graduate SETI course at Penn State, observations were taken in X, C and S bands with plans to add L band at a later date to search for signals from potential artificial relay probes positioned to capitalize on the gravitational lensing effects of our Sun. This second project serves as a benchmark for searching for possible probes strategically placed as part of an interstellar communications network.