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BREAKTHROUGH LISTEN: SETI OBSERVATIONS OF NEARBY STARS AND THE GALACTIC PLANE WITH THE PARKES TELESCOPE

Abstract

Breakthrough Listen is a 10-year, $100M initiative to search for evidence of extraterrestrial intelligence in a scientifically rigorous manner. The ultimate goal: to comprehensively answer whether or not we are alone in the nearby Universe. Breakthrough Listen (BL) is motivated by advances in wide-bandwidth digital instrumentation, and by the Kepler mission's discovery that almost all stars harbor planetary systems.

Using the Parkes 64-m telescope and Green Bank 100-m radio telescopes, BL is surveying roughly 2000 of the nearest stars (a 50 light year range), covering all frequencies possible with the receiver suites available. To further expand electromagnetic frequency coverage, BL is using the Advanced Planet Finder (APF) telescope to conduct an optical search for narrowband laser emissions. In this talk, I will give an overview of the BL project, with a focus on observations conducted with the Parkes 64-m telescope in NSW, Australia. I will introduce the Parkes SETI galactic plane survey, and present details of observations of Alpha Centauri and Proxima Centauri, among other target stars. I will conclude with a discussion of data analysis techniques in development, and future efforts to expand the Breakthrough Listen program.