



Contribution ID: 1592

Type: **Poster**

## **The LiteBIRD Space Mission and the Search for Inflation at the Beginning of the Universe**

*Monday, August 8, 2016 6:30 PM (2 hours)*

Inflation is the leading theory to explain the first instant of the universe. The case for inflation is building, and now we may have the opportunity to observe the signature of gravitational waves from the inflation event embedded in the cosmic microwave background. If seen, these signals would confirm inflation, point to the correct model for inflation, and, given the high energies involved, teach us about fundamental physics such as quantum gravity and string theory.

I will describe the LiteBIRD cosmic microwave background space mission which is currently in collaborative Phase A studies in both Japan and the U.S. LiteBIRD will use a 50 cm diameter telescope and a ~2000 detector focal plane cooled to 100 mK to probe degree and larger angular scales in polarization. It will measure the entire sky with ~2 microK\*arcmin noise (150 GHz), and measure in 15 bands from 40 to 400 GHz to measure and subtract foregrounds. A rapidly spinning Half-Wave Plate will be used to rapidly “chop” between two polarization states. It will orbit at the second Lagrange point (L2).

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**Session Classification:** Poster Session

**Track Classification:** Astro-particle Physics and Cosmology