



Lite satellite for the study of B-mode polarization and Inflation from cosmic microwave background radiation detection, LiteBIRD

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LiteBIRD is a next generation CMB polarization satellite to probe the inflationary B-mode signal. The sensitivity is designed to measure the tensor-to-scalar ratio of 0.002 with 95% C.L. This allows us to test the major large-single-field slow-roll inflation models.

LiteBIRD will observe the full sky by spinning the satellite at the 2nd Lagrange point (L2) for the minimum of three years. The baseline design covers the observational frequency of 50-320 GHz with 6 bands in order to subtract the galactic foreground emissions. We are considering an extended focal plane with spectral bands spanning 40-400 GHz to better characterize galactic foregrounds. We have two detector candidates, transition edge sensor (TES) bolometer and microwave kinetic inductance detector (MKID). In both cases, a telecentric focal plane consists of approximately 2000 superconducting detector arrays of which individual detector is designed to have noise equivalent power less than <10 aW/rtHz. In this presentation, we will present the overview of LiteBIRD and the project status. We will discuss the required specifications of the mission instruments, including the detector, readout electronics, and focal plane design and associating cryogenics, in order to achieve the science goal. Currently LiteBIRD is under the selection process to be a JAXA strategic large mission. The targeted launch year is in early 2020s.