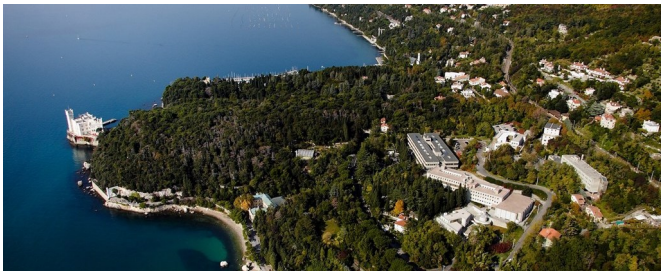

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The LiteBIRD cosmic microwave background polarization survey

Tuesday 29 August 2023 09:10 (30 minutes)

LiteBIRD, the Lite (Light) satellite for the study of B-mode polarization and Inflation from cosmic background Radiation Detection, is a space mission for primordial cosmology and fundamental physics. The Japan Aerospace Exploration Agency (JAXA) selected LiteBIRD in May 2019 as a strategic large-class (L-class) mission, with an expected launch in the late 2020s using JAXA's H3 rocket. LiteBIRD is planned to orbit the Sun–Earth Lagrangian point L2, where it will map the cosmic microwave background polarization over the entire sky for three years, with three telescopes in 15 frequency bands between 34 and 448 GHz, to achieve an unprecedented total sensitivity of 2.2μK-arcmin, with a typical angular resolution of 0.5○ at 100 GHz. The primary scientific objective of LiteBIRD is to search for the signal from cosmic inflation, either making a discovery or ruling out well-motivated inflationary models. The measurements of LiteBIRD will also provide us with insight into the quantum nature of gravity and other new physics beyond the standard models of particle physics and cosmology. We provide an overview of the LiteBIRD project, including scientific objectives, mission and system requirements, operation concept, spacecraft and payload module design, expected scientific outcomes, potential design extensions, and synergies with other projects.

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