

Simulations of systematic effects arising from cosmic rays in the LiteBIRD space telescope, and effects on the measurements of CMB B modes.

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LiteBIRD is an upcoming JAXA-led cosmology space mission which has the scientific goal of measuring polarised CMB B-modes. LiteBIRD will fly at an L2 orbit, and thus will be subject to cosmic rays owing to the radiative environment. We present an end-to-end simulator for evaluating the effect of cosmic rays on the science outcomes of the LiteBIRD space mission, taking into account the projected cosmic ray flux during the mission duration, thermal and electrical response of the telescope's sub-Kelvin detectors, and its interaction with sky maps and the tensor-to-scalar ratio r . This simulator is an important tool for testing the sensitivity of mission outcomes on detector and wafer design, as well as sensitivity to variability of the radiative environment.

Presenter: Prof. STEVER, Samantha (Okayama University/Kavli IPMU)

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