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GroundBIRD – CMB polarization observation with continuously high-speed rotation

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GroundBIRD is a millimeter-wave telescope to observe the polarization patterns of the cosmic microwave background (CMB) at the Teide Observatory in the Canary Islands with 150-GHz and 220-GHz frequency bands. This telescope is designed to achieve the highest sensitivity at large angular scales, $\ell = 6 - 300$. For wide-sky observations, continuous scanning at a high rotation speed ($120^\circ/\text{s}$) was developed to suppress atmospheric fluctuations. Microwave kinetic inductance detectors (MKID) are utilized as focal-plane detectors due to their fast time response and easy multiplexing.

GroundBIRD telescope is now being commissioned with observations by a remote operation system to check the instrument performances. Calibration studies are also being evaluated by using Moon observation datasets. We will present an overview of the GroundBIRD project, show the current status, and forecast GroundBIRD sensitivity.

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