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# A Cryogenic Half Wave Plate Rotator for the Simons Observatory Small Aperture Telescopes

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Located in the Atacama Desert of Chile, the Simons Observatory consists of one Large Aperture Telescope (LAT) and 3 Small Aperture Telescopes (SATs). The latter of these are optimized to observe the polarization in the CMB at large angular scales ( $30 < \ell < 300$), and as such we require a high degree of stability in our observations. To accomplish this we employ rapidly rotating sapphire cryogenic half wave plates (CHWPs) in the optical chain of the SATs. This design uses a 550 mm diameter superconducting magnetic bearing (SMB) for contactless rotation, the largest such bearing used in a telescope to date. In this talk I will discuss the design considerations and initial performance of the CHWP rotation mechanism.

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