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Exploring the microwave sky with CMB-S4

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Observations of the microwave sky enable a vast range of scientific explorations ranging from particle physics and cosmology to astronomy. CMB-S4 is an upcoming ground-based microwave experiment that plans to site telescope at the South Pole in Antarctica as well as in the Atacama desert in Chile. These telescopes will observe the sky with approximately 500,000 superconducting detectors, facilitating an unprecedented leap in experimental sensitivity. The scientific impact of CMB-S4 will include transformative measurements of the cosmic microwave background that inform our understanding of the earliest moments of the Universe. CMB-S4 will also make deep legacy millimeter-wavelength maps covering a large fraction of the sky that will contain galaxy clusters, sub-millimeter galaxies, as well as transient phenomena. In this talk, I will describe the CMB-S4 experiment and highlight some of its many scientific opportunities.

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