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Progress Report on the Large Scale Polarization Explorer.

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The Large Scale Polarization Explorer (LSPE) is a cosmology program for the measurement of large scale curl-like features (B-modes) in the polarization of the Cosmic Microwave Background. Its goal is to constrain the background of inflationary gravity waves traveling through the universe at the time of matter-radiation decoupling.

The two instruments of LSPE are meant to operate synergically by covering a large portion of the northern microwave sky. LSPE/STRIP is a coherent array of receivers planned to be operated from the Teide Observatory in Tenerife, for the control and characterization of the low-frequency polarized signals of galactic origin; LSPE/SWIPE is a balloon-borne Stokes polarimeter based on 330 large throughput multi-moded detectors, designed to measure the CMB polarization at 150GHz and to monitor the polarized emission by galactic dust above 200GHz.

Both instruments are in due course of development. We here report the status of the STRIP pre-commissioning phase and the progress in the characterization of the key subsystems of the SWIPE payload (namely the cryogenic polarization modulation unit and the multi-mode TES pixels) prior to receiver integration.

The measured performance and the expected level of systematics mitigation allow to constrain B-mode presence down to a tensor/scalar ratio of 10^{-2} .

Less than 5 years of experience since completion of Ph.D

N

Student (Ph.D., M.Sc. or B.Sc.)

N

Primary author: LAMAGNA, Luca (ROMA1)

Co-author: LSPE COLLABORATION

Presenter: LAMAGNA, Luca (ROMA1)

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