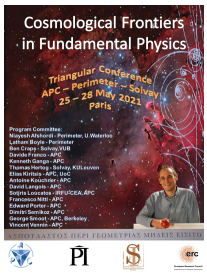

ID de Contribution: **9**

Type: **Non spécifié**

Through the veil of dust to inflation

mercredi 26 mai 2021 15:40 (40 minutes)

An inflation-probing B-mode signal in the polarization of the cosmic microwave background (CMB) would be a discovery of utmost importance in physics. While recent BICEP results hinting upon the detection of such a signal rallied enthusiasm, Planck showed that this breakthrough is still out of reach, because of contamination from Galactic dust. To get to the primordial B-modes, we need to subtract polarized emission of magnetized interstellar dust with high accuracy. A critical piece of this puzzle is the 3-d structure of the magnetic field threading dust clouds, which cannot be accessed through microwave observations alone, since they record integrated emission along the line of sight. Instead, observations of a large number of stars at known distances in optical polarization, tracing the same CMB-obscuring dust, can map the magnetic field between them. The Polar Area Stellar Imaging in Polarization High Accuracy Experiment (PASIPHAE) will deliver such a map combining novel-technology wide-field-optimized optical polarimeters and an extraordinary commitment of observing time by the Skinakas observatory in Crete and the South African Astronomical Observatory. Such a map would not only boost CMB polarization foreground removal, but it would also have a profound impact in a wide range of astrophysical research, including interstellar medium physics, high-energy astrophysics, and galactic evolution.

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Classification de Session: First session, Wednesday