



University of Crete  
Department of Physics



**FORTH**  
INSTITUTE OF ASTROPHYSICS



## *Joint Physics & IA/FORTH Colloquium*

Thursday, 9 February 2023 | 17:00 – 18:00, Seminar Room 3<sup>rd</sup> Floor

### **PASIPHAE: A tomographic map of the galactic magnetic field clears the path to Inflation**

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#### **ABSTRACT**

*An inflation-probing B-mode signal in the polarization of the cosmic microwave background (CMB) would be a discovery of utmost importance in physics. Still, contamination from Galactic dust and other foreground signals keep this breakthrough out of reach. A critical piece of the foregrounds 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 Areas Stellar Imaging in Polarization High Accuracy Experiment (PASIPHAE) will deliver such a map combining novel-technology wide-field-optimized optical polarimeters (WALOPs) 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.*