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THE ASTRONOMICAL DISCOVERY POTENTIAL ANTARCTIC INTERFEROMETRY

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Introduction: The best sites on the Antarctic plateau uniquely benefit the technique of infrared interferometry for astronomical observations. By obtaining high sensitivity measurements in the 2-5 microns bands, an astronomical interferometer has the potential to make unique, high-impact science discoveries about topics such as planets around other stars, the process of star formation, and the regions around black holes.

Methods: Interferometry is the technique by which light from multiple telescopes is coherently combined. The instrument performance is modelled using data from atmospheric site testing.

Results: The best Antarctic sites enable relatively modest instruments to substantially exceed the capabilities of the largest existing or planned infrared interferometers.

Discussion: This presentation will summarize the reasons why the Antarctic atmosphere is beneficial for the technique of infrared interferometry, potential science highlights, and the current state of international collaboration for specific instrument concepts.