

ALMA2019: Science Results and Cross-Facility Synergies



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The Event "Horizon Telescope: Imaging a Black Hole"

Wednesday, 16 October 2019 11:10 (25 minutes)

Invited talk

Abstract:

The Event Horizon Telescope (EHT) is a Very Long Baseline Interferometry (VLBI) array operating at the shortest possible wavelengths, which can resolve the event horizons of the nearest supermassive black holes. Observing at mm radio wavelengths, enables detection of photons that originate from deep within the gravitational potential well of the black hole, and travel unimpeded to telescopes on the Earth. The primary goal of the EHT is to resolve and image the predicted ring of emission formed by the photon orbit of a black hole. A sustained program of improvements to VLBI instrumentation and the addition of new sites through an international collaborative effort led to Global observations in April 2017: the first campaign with the potential for horizon imaging. After 1.5 years of data reduction and analysis we report success: we have imaged a black hole. The resulting image is an irregular but clear bright ring, whose size and shape agree closely with the expected lensed photon orbit of a 6.5 billion solar mass black hole. This talk will cover the project and first results as well as future directions.

Presenter: Dr DOELEMAN, Shep

Session Classification: Galaxies