

Probing the cold/obscured/distant universe: Upcoming opportunities in the space-based infrared

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Today, ALMA and JWST are revolutionizing our views of star & planet formation and galaxy evolution with their unprecedented sensitivity and resolution at submillimeter and near/mid-IR wavelengths.

However, many outstanding questions in these areas can only be answered with observations in the far-infrared domain, which generally need space-based instrumentation.

For planet formation, these include the gas masses and dispersal mechanisms of disks, as well as the distribution of their refractory and volatile material with time.

For galaxy evolution, key questions include the origin of dust and heavy elements, the physics of the evolving interstellar medium, as well as a census of the cosmic star-formation history and stellar mass assembly including the dust-obscured galaxies, and the role of feedback by stars and AGN.

This talk reviews far-infrared missions that have been proposed for the next decade, with a focus on NASA's Astrophysics Probe program.

Detector technology from SRON is a key element of the FIRSST, PRIMA and SALTUS mission concepts, and will provide unique opportunities for their scientific exploitation and synergies to astronomers in the Netherlands.

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