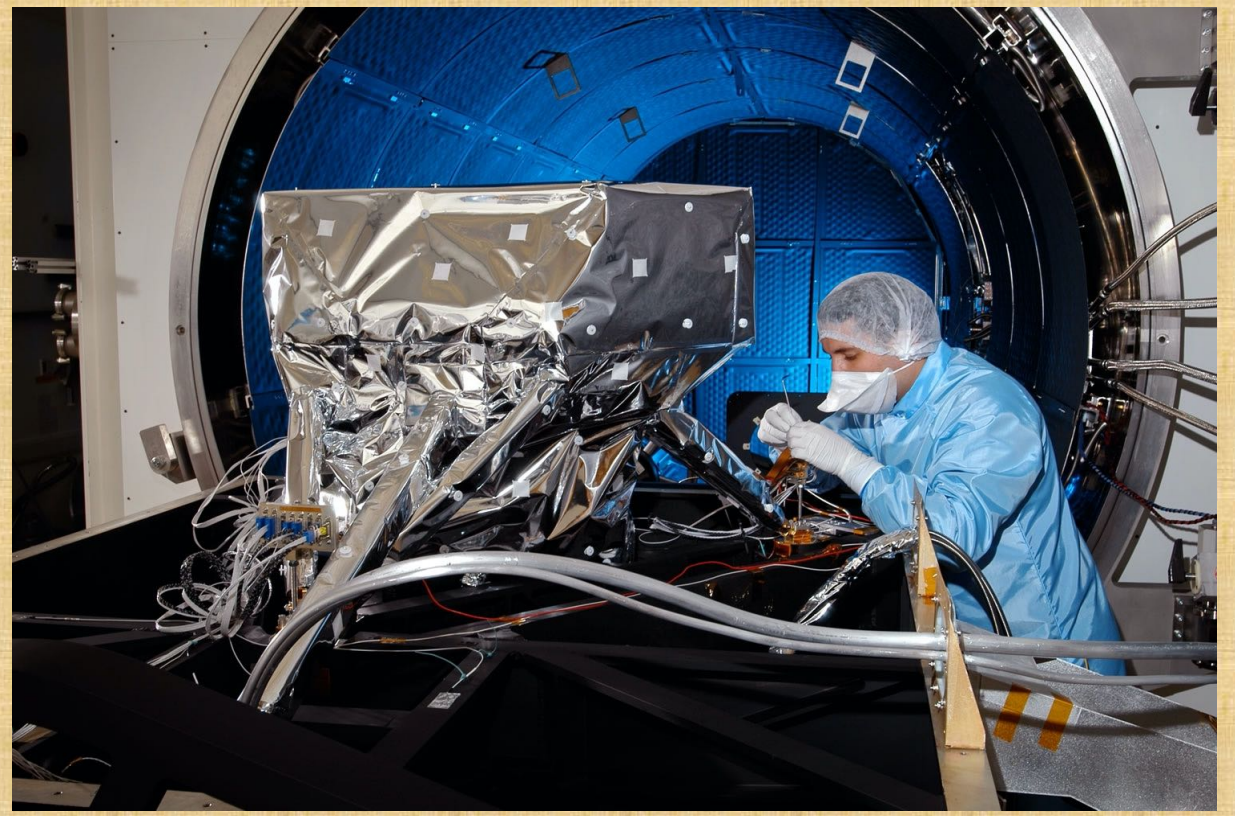
The James Webb Mid-Infrared Instrument (MIRI)



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The MIRI Flight Model ready for ground testing at the Rutherford Appleton Laboratory (UK) cryo-vacuum chamber. The tests were performed in flight conditions using INTA's MIRI Telescope Simulator.

MIRI provides imaging, coronagraph, long-slit and integral field spectroscopic capabilities from 5 to 29 μm to the James Webb Space Telescope (JWST) in one single instrument. It was developed by a consortium of European and US institutes over a period of more than ten years.

The imaging can be performed in nine bands, with a field of view (FoV) up to 74" x 113". The coronography is performed by three four-quadrant phase masks plus a Lyot coronagraph with a FoV of up to 30"x30". The Low Resolution Spectrometer provides both long-slit and slit-less capabilities from 5 to 14 μm. The Medium Resolution Spectrometer is an integral field spectrograph that provides diffraction limited spectroscopy between 4.9 and 28.8 μm, within a FoV up to 8"x8".

The MIRI science goals include (but are not limited to): studies of young warm exoplanets and their atmospheres, identification and characterization of the first galaxies of the Universe, analysis of warm dust and molecular gas in young stars, proto-planetary disks, and of nearby galaxies.

CAB scientists from both CSIC and INTA have been involved in the development, testing and characterization of MIRI for the past two decades, and will play an important role during the on-orbit commissioning of the instrument. We are also involved in the scientific exploitation of MIRI guaranteed time, leading and participating in programs including deep cosmological surveys, the early formation and evolution of Galaxies, the physics of nearby galaxies, and the study of exoplanets and brown dwarfs.

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