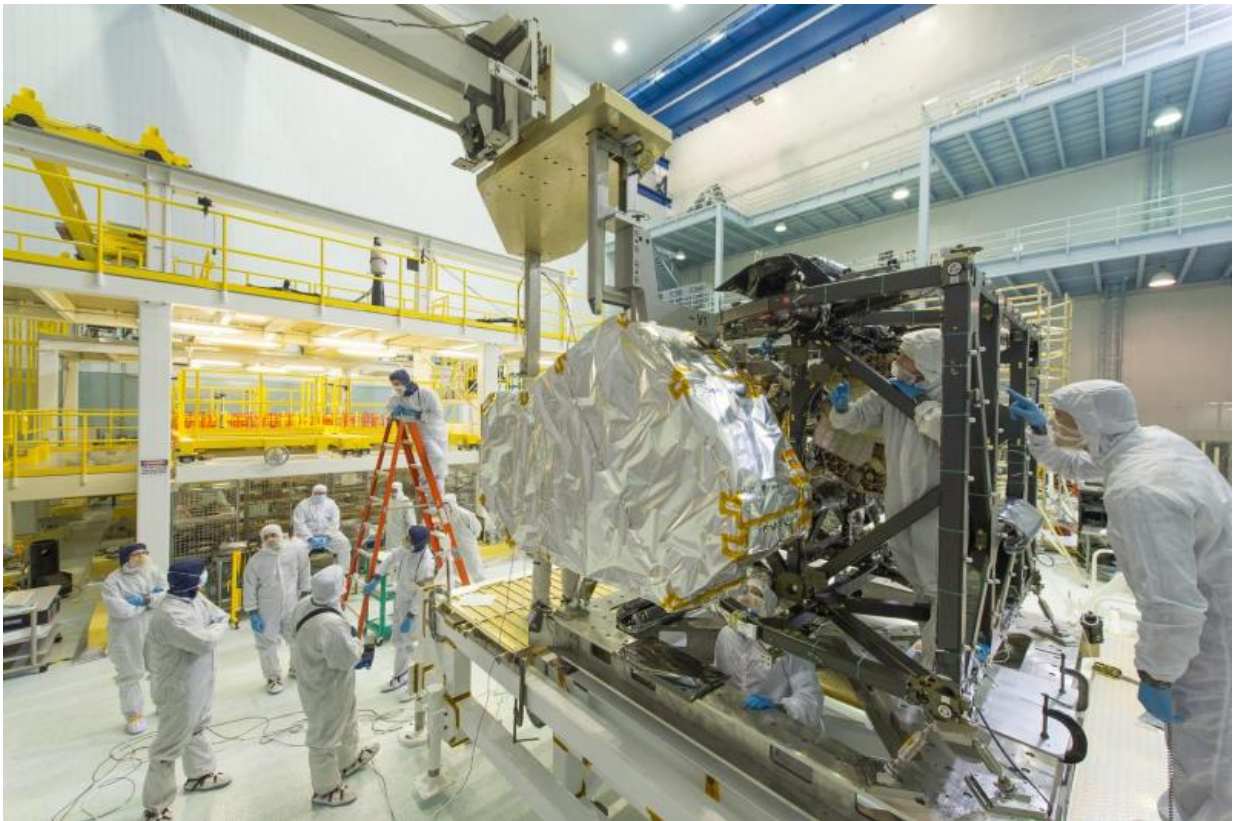


Image: NIRSpec on the James Webb Space Telescope

November 25 2015



Credit: NASA/Chris Gunn

Europe's NIRSpec instrument will be launched in 2018 as part of the NASA–ESA James Webb Space Telescope. This week, in recognition of the UN International Year of Light, a NIRSpec model is among the

cutting-edge optical instruments on display at ESA's technical heart, coinciding with a gathering of optical experts.

The Innovative Technologies in Space Optics workshop is being hosted at ESTEC in Noordwijk, the Netherlands, from where the NIRSpec programme is managed.

The Near InfraRed Spectrograph will study the characteristics of more than a hundred celestial objects at once – a major technical challenge to European industry.

Its focusing mirrors had to be lightweight while maintaining perfect optical performance even as their operating temperature drops to just 40°C above absolute zero. The material of choice turned out to be cold-pressed silicon carbide, originally synthesised in an attempt to make artificial diamonds, and championed by ESA's [space](#) optics experts.

The word 'optics' comes from the Greek for eye, but the workshop is discussing instruments that operate far beyond the limits of human vision, from the [infrared wavelengths](#) of the James Webb Space Telescope to the X-rays that will be focused by ESA's Athena observatory.

Also on show were the latest CCD and APS light detectors, the use of the laser equivalent of radar to look back at Earth by ESA's Aeolus and EarthCARE satellites, and lasers for high-bandwidth, long-distance communication for Europe's EDRS 'data highway'.

Provided by European Space Agency

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