

SPIR Notes

Special Projects in Radiometry (SPIR) is a division dedicated to providing turnkey systems in spectral radiometry and optical remote-sensing instrumentation. Our team includes over 80 highly qualified engineers, scientists and technicians.

Expanding ABB Bomem's excellence in building state-of-the-art instruments:

- Optical instruments for use on aircrafts, balloons or satellites
- Hyperspectral imagers
- Optical calibration systems
- Software for data processing and instrument modeling

Polymer Morphology Experiment

In 1988, Bomem supplied the interferometer subsystem to 3M (St-Paul Minnesota) for the Space Shuttle instrument POLYM. The instrument flew successfully as part of STS-34 in October 1989. Prior to launch, the package was submitted to complete vibration, shock and thermal testing.

3M and NASA entered in a ten-year agreement in 1984 to perform micro-gravity studies on shuttle. POLYM was the third instrument package to be created. These instruments reside in the crew bay and the mission specialist had some control on the operations. The POLYM instrument consisted of a Fourier spectrometer (Bomem M100) including source, interferometer detector and electronics, coupled to a dedicated sampling system that allowed automatic insertion of samples which were housed in specially designed temperature controlled cells.

The samples were exposed to temperature profiles that could last a few hours typically and 4 cm^{-1} spectra were acquired throughout this period. Overall, twenty sample cells were available.

The spectrometer components were all standard parts from Bomem and was successfully operated over the mission. As taken from NASA reports of the flight:

MISSION CONTROL STATUS REPORT #910/20/89, 12:30 p.m. CDT

Lucid also reported that the Polymer Morphology experiment is functioning without problem and is processing the samples as planned. The crew will process a total of 19 samples during the mission.

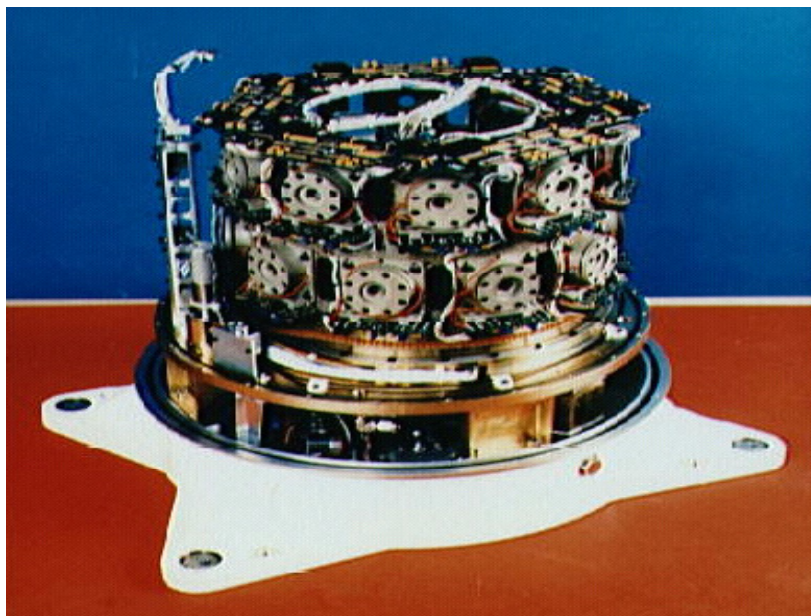


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