

SMALL SATELLITE MISSIONS SYMPOSIUM (B4)
Small Space Science Missions (2)

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THE MICRO ROENTGEN SATELLITE INSTRUMENT

Abstract

This Paper presents the μ ROSI X-Ray Telescope currently under development at the Max - Planck Institute of Extraterrestrial Physics (MPE).

As primary payload on board of the south-tyrolean amateur satellite "Max Vallier", μ ROSI is designed to perform an all-sky survey similar to the ROSAT mission. Although both, the spatial resolution and the collecting area are much less compared with ROSAT, spectral resolution of the silicone drift chamber detector (SDD) selected for μ ROSI is excellent, matching that of XMM-Newton or Chandra. Max Vallier is developed and launched in cooperation with OHB.

μ Rosi consists of a 12 shell Wolter-1 mirror, the silicone drift chamber detector, control electronics, a thermal control system for the SDD, and an optical bench structure to support and align all components. We describe these various subsystems of the Telescope and their current development status from a technological and scientific point of view.

Special emphasis is given to the latest analysis and design work on the structural and thermal configuration, including the manufacturing and testing of the structural and thermal qualification model.

The final structural and thermal configuration was determined via a trade-off between a broad range of different configurations. These included CFRP, aluminum Honeycomb, and solid shell solutions as well as different radiator concepts and subsystem interfaces. We comment on the advantages and disadvantages of the various variants, and the analysis carried out to characterize them.

An outlook on the remaining development steps and the upcoming test and calibration program is also given.