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Type: Oral presentation

ComPol - a nano-satellite dedicated to long-term study of Cygnus X-1 polarisation

vendredi 25 mars 2022 14:55 (10 minutes)

ComPol is a proposed CubeSat mission developed in the context of the ORIGINS excellence cluster with contributions from the Laboratory for Rapid Space Missions, Technische Universität München, Max Planck Institut für Physik, Politecnico di Milano and CEA Departement d'Astrophysique. The main goal of the mission is long-term observation of Hard X-ray/soft gamma ray polarisation of Cygnus X-1 and the evaluation of the scientific potential of CubeSat payloads.

The ComPol payload is a stacked Compton Telescope optimized for polarimetry measurements. It is composed of two separate detectors, a silicon drift detector, TRISTAN, as used in the KATRIN experiment for the search of sterile neutrinos and a position sensitive cerium bromide calorimeter coupled to a silicon-photomultiplier matrix developed at CEA. After a brief overview of the interest of gamma ray polarisation studies, this talk will focus on the principle of polarization measurement with a Compton telescope and a description of the calorimeter detector plane. We will also present calibration data for the calorimeter, the energy response and expected point of interaction position reconstruction precision.

Field

Instrumentation

Day constraints

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Classification de Session: Talk

Classification de thématique: Astrophysics