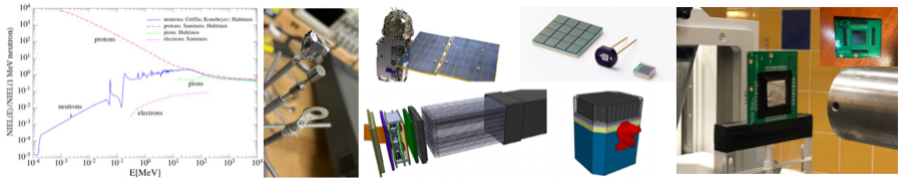

Contribution ID: **36** Type: **not specified**

SiPM-based CubeSat for Measuring the Cosmic X-ray Background

Thursday 28 April 2022 13:50 (25 minutes)

The Cosmic X-ray Background (CXB) dominate the X-ray fluxes over the sky, as it is believed to be a superposition of numerous discrete sources, which are primarily Active Galactic Nuclei (AGNs). The CXB intensity therefore offers an unique probe to study the AGN population. Limited by background modeling and (cross) calibration issues, the uncertainty of the CXB measurements remain currently at an order of 20 per cent on its normalization. A dedicated CXB detector is therefore needed to measure the CXB accurately. Benefiting from SiPM technologies which relax the design constraints, space-borne detectors are increasingly formed into CubeSat missions. We present here the concept, simulated performances and science goals of the EQUATOR mission, which is mainly consist of an array of collimated spectrometers with a rotating shutter on top of the aperture. With two years operation in space, such a mission is expected to measure the CXB with ˜1 per cent uncertainty in 10-100 keV energy range, and thus gain us knowledge of the accretion power in the Universe.

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Session Classification: Future Applications

Track Classification: Space Applications