



Contribution ID: 25

Type: **Oral presentation**

Development and deployment of SiPM in space: from Lazio-Sirad to Mini-EUSO and SPB2

Thursday, 3 October 2019 18:00 (20 minutes)

In this work we will describe the development of SiPM for space-borne detectors for astroparticle physics research. The first known use of SiPM in space was in 2005, installed in the Lazio-Sirad experiment in the framework of Roberto Vittori's mission on board of the International Space Station. The SiPM developed at Mephi by Dolgoshein have been used as readout of a small calorimeter to measure radiation environment in space and assess the effectiveness of shielding for astronauts. A more recent usage of an array of SiPM (64 pixels array) is for an imaging detector to study UV terrestrial emissions in the framework of the MINI-EUSO mission, to be launched in Summer 2019.

In this contribution we will also discuss the synergy with the development of novel readout and triggering techniques in the framework of FLUCHE, an ASI-sponsored project to develop next-generation SiPM based detectors for future applications such as the forthcoming SuperPressureBalloon 2 (SPB2) flight from New Zealand (to launched in spring 2022).

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Session Classification: Astroparticle and space applications