

ID 190

Tipo de Comunicación: Poster

Sesión Científica: Instrumentacion y sipercomputacion

Título: SIRENA: algorithms for energy reconstruction Athena X-IFU detector

Nombre (Autor que presenta): M.T.

Apellidos (Autor que presenta): Ceballos

Apellidos y nombre de los autores: Cobo, B., Peille, P., Wilms, J., Brand, T., Dauser, T., Bandler, S., Smith, S.

Resumen:

The X-ray Observatory ATHENA was proposed in April 2014 as the mission to implement the science theme "The Hot and Energetic Universe" selected by ESA for L2 (the second Large-class mission in ESA's Cosmic Vision science programme). One of the two X-ray detectors designed to be on board ATHENA is X-IFU, a cryogenic microcalorimeter based on Transition Edge Sensor (TES) technology that will provide spatially resolved high-resolution spectroscopy. X-IFU will be developed by an international consortium led by IRAP (PI), SRON (co-PI) and IAPS/INAF (co-PI) and involving ESA Member States, Japan and the United States. In Spain, IFCA (CSIC-UC) has an anticipated contribution to X-IFU through the Digital Readout Electronics (DRE) unit, in particular in the Event Processor Subsystem. We at IFCA are currently developing SIRENA, a set of on board processing algorithms aimed at recognizing, from a noisy signal, the intensity pulses generated by the absorption of the X-ray photons, to later reconstruct their energy, position and arrival time. Here we will present a trade-off of the algorithms developed to date, comparing their performance in terms of energy resolution as well as resources consumption. This has been proven to be a fundamental study to design the on board processing hardware responsible to host the Event Processor.