

Silicon Drift Detector technologies for high-throughput spectral-timing X-ray space astronomy

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Thanks to the large photon-collecting area and small anode capacitance, combined with state-of-the-art techniques to reduce the impact of leakage current on the overall electronic noise, Silicon Drift Detector (SDD) technology enables the development of sensors which are particularly suited for high-throughput space-based spectral-timing X-ray astronomy. In this talk, we will present the latest activities on SDDs carried out by a large collaboration involving INAF, INFN, FBK and several Universities. In particular, we will focus on three applications for space astronomy: the Large Area Detector (LAD) on board the eXTP mission, for the study of matter under extreme conditions; the High Energy Rapid Modular Ensemble of Satellites (HERMES) CubeSat constellation, for the localization of high-energy transient sources via triangulation; and the Pixelated Drift Detector (PixDD) integrated system, to be used as a focal-plane detector for X-ray concentrators and large field-of-view optics.

Summary

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