

Development and characterization of a novel alpha particle SOI pixel sensor for neutron detection

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Solid-state sensors have been initially proposed as direct replacement of ^3He gas detectors but recently raise the interest in imaging systems.

We have developed a monolithic sensor with high spatial granularity in SOIPIX technology for the detection of alpha particles of energy compatible with the reaction products of neutrons with converter materials. The chipset is composed by the main pixel matrix and the test structures needed for a better understanding of the chip functionality and for studying the electronic tuning strategies. The fabricated prototypes have been recently delivered and the first tests under alpha source have been performed.

We will present the proposed devices and the results of the experimental characterization.

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