Contribution ID: **189** Type: **Talk**

Silicon Drift Detectors for high precision exotic atoms X-ray spectroscopy

Wednesday 25 August 2021 11:00 (30 minutes)

The high precision X-ray spectroscopy of exotic atoms, in particular of kaonic atoms, offers the unique opportunity to investigate the strong interaction (QCD) in the low-energy regime, by allowing to directly access the antikaon-nucleus interaction at threshold. In order to do this, a new dedicated technology of Silicon Drift Detectors (SDDs) has been developed by the SIDDHARTA-2 collaboration, with an optimized geometry for the detectors, with a new field configuration and read-out electronics, which allow the SDDs to work in the high and variable background environment of a collider. The unique characteristics of the SDDs make them ideal for kaonic atoms experiments such as SIDDHARTA-2 at LNF-INFN and E62 at J-PARC. These detectors are also used in testing the Pauli Exclusion Principle in the VIP experiment at the underground LNGS.
This contribution will present the characterization and optimization of the SDDs and the first results coming from their use in measurement of kaonic helium during the 2021 the DAFNE collider commissioning phase, in preparation for the SIDDHARTA-2 kaonic deuterium run. Future plans for the development of 1 mm-thick Silicon Drift Detectors for exotic atoms spectroscopy in higher energy domain will be discussed.

Is this abstract from experiment?

Yes

Name of experiment and experimental site

SIDDHARTA-2, National Laboratory of Frascati of INFN, Italy

Is the speaker for that presentation defined?

Yes

Details

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https://home.infn.it/it/

Internet talk

Maybe

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Session Classification: D Cosmology, Astrophysics, Gravity, Mathematical Physics