

# Calibration of Silicon Drift Detectors for High Precision Spectroscopy in SIDDHARTA-2 Experiment

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The SIDDHARTA-2 experiment at the DAΦNE collider aims to perform the first high-precision measurement of kaonic deuterium x-ray transitions to the fundamental level with low systematic uncertainty. To achieve this goal, the experimental apparatus is equipped with 384 Silicon Drift Detectors (SDDs) distributed around its cryogenic gaseous target. The SDDs developed by the SIDDHARTA-2 collaboration are suitable for high precision kaonic atoms spectroscopy, thanks to their high energy and time resolutions combined with their radiation hardness. Calibration and monitoring of the energy response of each SDD is critical to keeping the systematic error at a minimum level. This presentation will discuss the SIDDHARTA-2 calibration method optimised in the real background conditions of the DAΦNE collider. The method includes energy calibration using x-rays tubes and multielement target. The optimised calibration method is a fundamental tool to guarantee the high precision spectroscopic performances of the system over long period of data taking, as that required for the kaonic deuterium measurement. The results of the calibration process and their impact on the achieved precision will also be presented.

## Summary

**Primary author:** KHREPTAK, Aleksander (Istituto Nazionale di Fisica Nucleare)

**Presenter:** KHREPTAK, Aleksander (Istituto Nazionale di Fisica Nucleare)

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