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【335】Silicon Photomultiplier Array for the DARWIN Demonstrator

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The DARWIN project aims to establish a next-generation observatory for the detection and study of dark matter and neutrinos, featuring a 50-tonne dual-phase xenon time projection chamber. As a full-scale demonstrator, the Xenoscope facility at the University of Zurich investigates its technological challenges. A key focus is the search for ultra-low background photosensors capable of detecting prompt scintillation light and charge signals in xenon. While most rare-event experiments employ photomultiplier tubes for this purpose, Xenoscope is exploring the use of Silicon photomultipliers (SiPMs). This work presents the design and development of a SiPM array for Xenoscope, along with the results of a sensor characterisation campaign.

Theoretical Work

Author: OUAHADA, Sana (UZH)

Presenter: OUAHADA, Sana (UZH)

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