



FZU

Institute of Physics
of the Czech
Academy of Sciences

Invitation

to the seminar of Division of Elementary Particle Physics of the
Institute of Physics of the Czech Academy of Sciences



Dr. Peter Švihra

FZU - Institute of Physics of the
Czech Academy of Sciences

Low-Gain Avalanche Detectors: path towards precise track timing

Abstract: The upcoming High-Luminosity LHC era necessitates a shift to 4D tracking in High Energy Physics experiments to reduce occupancy from pile-up. This transition requires detectors with excellent spatial resolution, time-tagging capabilities, and higher radiation tolerance. Low-Gain Avalanche Detectors (LGADs) have emerged as a promising technology to meet these challenges.

This seminar explores LGAD developments for precise track timing, covering detection principles and recent design improvements. We introduce the potential of silicon carbide (4H-SiC) in LGADs, a wide-bandgap material that could offer enhanced radiation resistance for inner tracking layers. Results from lab tests and beam experiments demonstrate the capabilities of these advanced detectors, showcasing good gain uniformity, timing resolution, and energy sensitivity. These findings underscore LGAD technology's potential for next-generation particle detectors in future HEP experiments.

When: Thursday, November 14, 2024 at 2PM

Where: Dvořák hall, FZU, Pod Vodárenskou věží 1, Prague

For more information, please see <https://indico.fzu.cz/event/263/>