Contribution ID: **42** Type: **Oral/Presentation**

Scintillation Light Detection in Polycrystalline Diamond Using Single Photon Detectors

Thursday 21 November 2024 14:34 (18 minutes)

Single-crystal diamonds are used in particle detection via charge collection mode, benefiting from their high charge mobility and long carrier lifetime. However, their production is challenging and size-limited. Polycrystalline diamond, which can be produced more easily and in larger sizes through Chemical Vapor Deposition, offer a viable alternative as scintillators for charged particle detection. We present preliminary results on the scintillation properties of polycrystalline diamonds irradiated by alpha particles, including the scintillation time profile, light yield estimates, and imaging capabilities. The signals are detected using Silicon Photomultipliers (SiPMs), facilitating the development of compact, scalable detectors with imaging capabilities. Additionally, we will discuss potential applications, including a detector design for thermal neutrons utilizing SiPMs.

Do you need a VISA letter for traveling to Canada ?

No

Authors: BOLOTNIKOV, Aleksey (Brookhaven National Laboratory); Dr MULLER, Erik (Brookhaven National Laboratory); GALLICE, Niccolo' (Brookhaven National Laboratory (US))

Presenter: GALLICE, Niccolo' (Brookhaven National Laboratory (US))

Session Classification: New materials and Technologies (Chair: Nicola D'Ascenzo, Feng Shi)

Track Classification: Applications: Applications