Contribution ID: **75** Type: **Poster**

Quantum systems for enhanced detectors for High Energy Particle Physics

Monday 29 May 2023 16:20 (20 minutes)

In this contribution I will present ideas and ongoing project to enhance the capabilities of particle detectors using quantum systems [1]. The presented technologies could not only improve the accuracy of measurements but also provide a new dimension by directly sensing properties as spin of individual particles. The level of maturity and applicability of ideas range from those already proved they basic principles to others which are an exercise of what future detectors might look like.

I will start from defining concepts of what is considered in this approach a quantum sensor. Then, the focus will be on detectors for tracking, calorimetry, and timing using nanostructured materials, atoms, molecules and ions and spin-based sensors.

[1] Doser M, Auffray E, Brunbauer FM, Frank I, Hillemanns H, Orlandini G and Kornakov G (2022) Quantum Systems for Enhanced High Energy Particle Physics Detectors. Front. Phys. 10:887738. doi: 10.3389/fphy.2022.887738

Author: KORNAKOV, Georgy (Warsaw University of Technology (PL))

Presenter: KORNAKOV, Georgy (Warsaw University of Technology (PL))

Session Classification: Session 3.4