



Contribution ID: 10

Type: **Talk**

## Quantum Sensing for Particle Physics Using Single Molecule Magnets

*Wednesday 19 February 2025 11:55 (20 minutes)*

Answering the most puzzling questions in fundamental physics drives a continuous quest for the development of new detection techniques allowing to go beyond traditional measurement approaches. On this purpose, an increasing R&D activity for the development of new detection strategies based on exploiting the extreme sensitivity of quantum systems is currently ongoing, aiming at introducing innovative sensors with frontier performances. Among the quantum systems being currently investigated in this rapidly evolving interdisciplinary field, Single Molecule Magnets (SMMs, molecular crystals where each molecule substantially behaves as a tiny, isolated magnet) are considered to have promising potentialities for developments in the context of spin-based devices. After an introduction to these relatively new materials, we present the INFN R&D project NAMASSTE and its results, which give strong evidence for the potential application of quantum sensing based on SMMs to particle detection.

### Primary experiment

NAMASSTE

**Author:** LATINO, Giuseppe (Universita e INFN, Firenze (IT))

**Presenter:** LATINO, Giuseppe (Universita e INFN, Firenze (IT))

**Session Classification:** Quantum

**Track Classification:** Quantum Sensing