UNIMORE Dipartimento di Scienze Fisiche, Informatiche e Matematiche

UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

CNR NANO MODENA S3

FIM-S3 SEMINAR

Fluorides: The Most Exciting Materials for *μ*SR – From Quantum Information to Excited States

Wednesday September 24th, 2025 – 11.00 (sharp)

S3 Seminar Room, 3rd Floor, Physics building
Remote link: Teams

Speaker

John WILKINSON – ISIS Neutron and Muon Source (UK)

Abstract

Muons provide a unique local probe for studying materials at the atomic level, and fluorides have emerged as particularly powerful model systems. In this talk, I will explore how fluorides can be used to track the muon's quantum information through a sample, opening the door to new insights into how a muon interacts with its environment and enabling rigorous validation of DFT-calculated muon stopping sites. Building on these results, I will show how this approach informs our understanding of more complex magnetic systems, including antiferromagnets and Coulomb-phase materials. Finally, I will share a brief look at some early work on modelling the excited states of muonium, aimed at gaining new insights into the electronic structure of defects.

Host: Pietro Bonfa'

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