



UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

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SEMINARIO



Prof. Dr. **Jürgen Schnack**,

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Giovedì 14 maggio 2026 ore 16.30

Aula Maxwell, Plesso di Fisica

Titolo: Magnetic molecules for magnetocalorics

The magnetocaloric effect is at the heart of processes to achieve very low temperatures without relying on helium. It is therefore also the subject of intense research to find new materials such as molecule-based coolers. This was recently acknowledged by funding a European MSCA Doctoral Network on “Molecule-based Magneto/electro/ mechano-Calorics”. In my presentation, I will recap fundamentals of magnetocalorics, discuss some molecular examples with a particular focus on frustration effects such as quantum phase transitions at which magnetocaloric figures of merit are particularly large. Finally, I will provide some insight into how theoretical physicists approach such quantum problems in high-dimensional Hilbert spaces (spoiler alert: it involves supercomputers).

Organizzatore: Prof. Paolo Santini