

Proposition d'un Projet de Recherche en Laboratoire

Titre : Probing novel quantum states in quantum materials at millikelvin temperatures

Laboratoire d'accueil : Laboratoire des Solides Irradiés (LSI)

Résumé : This student project aims to investigate the thermal properties of newly discovered quantum materials, with a focus on identifying emergent quantum states such as quantum spin liquids and unconventional superconductors. The student will design and construct a custom sample mount compatible with a dilution refrigerator capable of reaching temperatures below 10 millikelvin. This setup will enable precise measurements of thermal conductivity and the thermal Hall effect under extreme conditions, including magnetic fields up to 14 tesla. Experimental work will be carried out at École Polytechnique, with the goal of uncovering new insights into quantum phenomena. The project has the potential to culminate in a peer-reviewed publication, contributing to the broader understanding of quantum materials.

Mots clés : Quantum Materials, Superconductors, Thermal conductivity, Magnetic fields

Nature : Expérimental

Accueil d'un binôme possible : Oui

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