Growth and study of the transport properties of (100) and (110) oriented thin films of superconducting Pr2-xCexCuO4

Record number : OPR-1001

Overview

RESEARCH DIRECTION

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INFORMATION

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ADMINISTRATIVE UNIT(S)

Faculté des sciences
Département de physique
Institut quantique

LEVEL(S)

2e cycle
3e cycle

LOCATION(S)

Département de physique et Institut quantique
Laboratoire d'épitaxie avancée par ablation laser

Project Description

The project continues our efforts to grow high quality (100) and (110) oriented thin films of Pr2-xCexCuO4 and study their transport properties. These films can be used to study the angular dependence of magnetoresistance at large magnetic fields and directional tunneling. The project includes the growth of thin films by pulsed-laser ablation, their structural, magnetic and electrical characterization. Extensive transport measurements will be carried out at low temperature and large magnetic fields on samples micro-fabricated by photolithography. Magnetoresistance will allow us to better understand the morphology of the Fermi surface of these materials. The tunneling will allow us to determine the pairing symmetry of Cooper pairs. This project therefore aims to explain the origin of superconductivity in cuprates. Project that can begin in the Fall 2024 or Winter 2025 session.

Funding offered

To be discussed