



PROPOSITION DE STAGE Master 2 / PFE

Synthesis of silicon carbide thin films for neural interface applications

Neural interfaces are bioelectronic systems that interface the nervous system to digital technologies. This technology requires the development of electrode materials capable of detecting or stimulating the weak electrical fields generated by neurons. To guarantee long-term implant life, the materials must also be able to maintain their electrical performance over time. This is today one of the major obstacles to the development of neural implants. Within the framework of the ANR "SiCNeural" project (All silicon carbide long-lifetime neural interfaces), we propose to explore the potential of silicon carbide thin films for neural interface applications.

The aim of the internship is to study the deposition of polycrystalline silicon carbide (SiC) thin films by chemical vapor deposition (CVD) and analyze their chemical, structural, electrochemical and electronic properties. The work will consist in preparing and conducting the CVD experiments, characterizing the samples by a large variety of characterization tools (XRD, Raman, profilometry, SEM, ...) and analyzing the data in order to give a comprehensive understanding of the link between the material properties of the SiC film and the electrochemical/electronic properties.

We look for a highly motivated student (M2 level) with a strong background in material science. Basic practical lab skills in material synthesis/ characterization are required. The student should be able to work in a team, have excellent writing skills (reports, presentations...) and a good knowledge of spoken and written English.

LOCATION	Laboratoire SIMAP (Univ. Grenoble Alpes, CNRS, Grenoble INP) 1130 Rue de la Piscine, BP 75, 38402 Saint Martin d'Hères, France
SUPERVISION	Frederic MERCIER, Email : frederic.mercier@grenoble-inp.fr
ALLOWANCE	Internship allowance will be provided
DURATION	Feb-July 2025 (6 months); possibility to start during the winter semester (oct-jan) on a voluntary basis according to study plan

To apply please send a CV and motivation letter to Frederic MERCIER (frederic.mercier@grenoble-inp.fr).



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