

Master (M2) internship offer

Starting date possible from January 2027 – July 2027

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“OXIDE MATERIALS FOR HIGH POWER ELECTRONIC DEVICES” CONTEXT: THE ENERGY TRANSITION AND THE REDUCTION OF CO₂ EMISSIONS REQUIRE THE DEVELOPMENT OF POWER ELECTRONIC DEVICES THAT ARE EVER MORE HIGH-PERFORMANCE, EFFICIENT, AND COMPACT. WIDE-GAP SEMICONDUCTORS, SUCH AS SIC AND GAN, ARE CURRENTLY BEING EXTENSIVELY RESEARCHED FOR MEDIUM-POWER APPLICATIONS, PARTICULARLY IN HYBRID AND ELECTRIC VEHICLES. FOR HIGHER-POWER APPLICATIONS, SUCH AS SMART GRIDS OR RAIL TRANSPORTATION, VERY WIDE-GAP MATERIALS, SUCH AS GA₂O₃ AND NIO_x-BASED HETEROSTRUCTURES, SHOW GREAT POTENTIAL. THIS INTERNSHIP IS PART OF THE GOTEN – PEPR ÉLECTRONIQUE PROJECT, HTTPS://WWW.PEPR-ELECTRONIQUE.FR/GOTEN/ TASKS: THE INTERNSHIP WILL FOCUS ON STUDYING THE INFLUENCE OF THIN-FILM GROWTH CONDITIONS ON THEIR STRUCTURAL, ELECTRICAL, AND OPTICAL PROPERTIES. <u>THE MAIN ACTIVITIES WILL INCLUDE:</u> • PREPARATION OF ELECTRICAL CONTACTS; • ELECTRICAL TRANSPORT MEASUREMENTS (I-V, C-V, HALL EFFECT); • OPTICAL MEASUREMENTS OF TRANSMITTANCE AND REFLECTANCE; • STRUCTURAL CHARACTERIZATION BY X-RAY DIFFRACTION (XRD); • ANALYSIS AND INTERPRETATION OF EXPERIMENTAL RESULTS; • WRITING SCIENTIFIC REPORTS; • PRESENTING RESULTS AT SCIENTIFIC MEETINGS; • REGULAR INTERACTIONS WITH THE PROJECT’S FRENCH AND INTERNATIONAL PARTNERS. <u>LOOKING FOR PROFILE OF STUDENT</u> STUDENT FROM AN ENGINEERING SCHOOL OR UNIVERSITY, WITH A BACKGROUND IN: • SEMICONDUCTOR PHYSICS; MATERIALS PHYSICS; ELECTRONICS; DESIRED SKILLS • INTEREST IN EXPERIMENTATION AND SCIENTIFIC INSTRUMENTATION; • KNOWLEDGE OF MATERIALS PHYSICS AND/OR SEMICONDUCTOR PHYSICS; • FLUENT IN ENGLISH; • ABILITY TO ANALYZE AND PROCESS DATA; • INDEPENDENCE, AND MOTIVATION; • ABILITY TO WORK IN A TEAM AND MEET DEADLINES. <u>WHAT THE INTERNSHIP OFFERS:</u> THIS INTERNSHIP WILL PROVIDE PRACTICAL EXPERIENCE IN THE CHARACTERIZATION OF SEMICONDUCTOR MATERIALS, INSTRUMENTATION, AND DATA ANALYSIS, AS PART OF A COLLABORATIVE RESEARCH PROJECT WITH NATIONAL AND INTERNATIONAL PARTNERS.	
Possibility to prolong for theses :	Will be determined on the base of performance
gratification and reimbursement of transportation(work-home) 50% of cost	