



Junior Professorship in “New perspectives in electron microscopy for advanced characterization of innovative materials”

Centre de Recherche sur l'Hétéroépitaxie et ses Applications (CRHEA)
Sophia Antipolis, France

The Research Center for Heteroepitaxy and its Applications (CRHEA) is a research laboratory specialized in the **epitaxy of semiconductor materials** in particular wide bandgap semiconductors such as III-nitride materials (GaN, AlN), zinc oxide (ZnO), silicon carbide (SiC) and their micro- and nanofabrication in a clean room. CRHEA also studies 2D materials such as graphene, boron nitride and transition metal dichalcogenides and also superconducting (NbN) and new ferroelectric materials (ScAlN, ZnMgO). These materials are processed into devices for microelectronics, optoelectronics, photonics, metasurfaces and quantum heterostructures. CRHEA also conducts fundamental studies in **nanoscience** and **crystal growth**. The main areas covered by the CRHEA concern the **energy transition, the communications of the future and the environment and health**. The laboratory has nine molecular beam epitaxy growth reactors and six vapor phase growth reactors. It also has tools for structural characterization of materials, including a state-of-the-art transmission electron microscope (TEM) (<https://www.crhea.cnrs.fr/ACT-M/index.htm>) and a clean room for micro and nanofabrication. 70 researchers are working at CRHEA which has an annual budget of 4.5M€ excluding salaries.

CRHEA is a joint research unit of the National Center for Scientific Research (CNRS), and of the Université Côte d'Azur. The premises of CRHEA are located in the heart of the Sophia-Antipolis technopole in Valbonne, a short distance from Cannes and Nice in the French Riviera.

CNRS will soon open a Junior Professorship position in competition between 4 laboratories which have recently acquired TEMs, including CRHEA. CRHEA is therefore looking for an excellent candidate to strengthen its team working on advanced characterization by TEM either for scientific knowledge progress and for supporting new innovative materials developments. The candidate's research project needs to rely on CRHEA's expertise in materials and devices.

Offer: Tenure track research position for a period of 3 to 5 years, depending on the candidate's experience. Afterwards, if the evaluation is positive, the candidate will be permanently appointed as senior researcher (Directeur de recherche) at CNRS – Physics institute. Starting date (end of 2025) - Salary (~45k€/year gross, in addition, past experience will be accounted for) - Teaching load (28h/year of lectures or 42 h/year of practical work). The candidate may, at term, become the TEM group leader.

Financial resources: starting grant (ANR) of 200 k€ (equipment, PhD, operating expenses). Additional support might be obtained from Université Côte d'Azur such as a welcome package (50 k€) or PhD grant from doctoral school (~120 k€). The candidate will be able to supplement these funds by submitting specific research projects (ERC, ANR, Horizon, Region, CIFRE, etc.).

Candidate qualification:

- A Ph.D. and a professional experience (6-10 years) in transmission electron microscopy of advanced materials.
- Significant results in the field.
- A strong commitment to establish national and international partnerships, and to secure funding through research projects (ANR, Europe, ERC) is expected during the contract. Previous experience in this field would be a plus.
- Ability to become a research group leader.
- A high level in English is required. Knowledge of French language would be an asset but the recruited person will have the opportunity to learn French at the required level.

Application process:

Interested candidates are invited to submit their application including:

- Cover letter outlining their research and areas of expertise.
- Curriculum vitae, including a list of publications and courses taught.
- Names and contact information of three references.

More information is available from Philippe Boucaud, Director of CRHEA (philippe.boucaud@crhea.cnrs.fr), or Philippe Vennégues, TEM group leader (philippe.vennegues@crhea.cnrs.fr).