

Post-doc – AFM Characterization of Biological Surfaces

Institut de Recherche sur la Biologie de l'Insecte (IRBI), UMR 7261 CNRS – University of Tours, France

Position Overview

Job title	Research Engineer /post-doc– AFM Characterization of Biological Surfaces
Location	IRBI, UMR 7261 CNRS – University of Tours, France
Contract type	Research Engineer (ingenieur recherche) (fixed-term, < 3 years' experience)
Duration	1 year, renewable
Start date	September 9th, 2025
Working time	Full time (100%)
Gross salary	Ca. €3100-3400/month, according to experience
Application deadline	Until filled. A first deadline is set to 12 of Augsut 2026

About the Project

The successful candidate will join the CNRS at IRBI to work on the exploratory project **PheroInnov**, which investigates the physico-chemical mechanisms underlying the emission, transport, and detection of insect sex pheromones, using the silkworm moth as a model organism. The project aims to translate this fundamental knowledge into applied innovations, including higher-performance pheromone diffusers for agro-ecology and bio-inspired sensors for explosive detection.

More on the project: <https://www.cnrs.fr/fr/projet-ri2/pheroinnov>

Host Team

The engineer will be based within the **INOV team** (Organism–Environment Interactions: Mechanisms and Responses to Global Change) at IRBI, working in close collaboration with the PheroInnov project coordinator and partner scientists.

Key Responsibilities

Working alongside another scientist, the engineer will:

1. Complete a detailed AFM-based topographic mapping of insect antennae (already initiated).
2. Adapt a biological-substrate platform (high-efficiency, direct-drive tapping-mode cantilever holder for scanning in fluids) to the AFM setup, and analyze cuticle surface properties and pheromone–surface interactions.
3. Develop a novel analytical approach to characterize interactions between these surfaces and aerosols, both pheromone-laden and pheromone-free.
4. Contribute to the overall progress of the project (manuscript and report writing, weekly team meetings).
5. Occasionally assist with the rearing/maintenance of one or two insect species used in the study.

These AFM-based analyses will be complemented by microscopic characterization (TEM) of olfactory pores.

Candidate Profile

- **Education:** Engineering degree or university qualification in chemistry or physics, at doctoral (PhD) level.
- **Required expertise:** Strong background in interfacial physico-chemistry and surface force phenomena.
- **Desirable experience:**
 - Hands-on experience with Atomic Force Microscopy (AFM), particularly tip functionalization for biochemical studies.
 - Experience with Transmission Electron Microscopy (TEM) or other advanced microscopy techniques.
 - Prior experience handling live biological material.

Working Environment

IRBI focuses on the study of interactions between insects and their biotic and abiotic environment. The institute brings together a dynamic community of **27 permanent researchers/faculty**, alongside numerous postdoctoral and contract researchers and **18 PhD students**, for a total of **75 people**. IRBI regularly hosts scientific seminars on a wide range of insect-related topics.

Please apply through the dedicated CNRS web site, position UMR7261-AICBEL-051

<https://emploi.cnrs.fr/Offres/CDD/UMR7261-AICBEL-051/Default.aspx>