



Center for Imaging the Dynamics of Neural Circuits

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## Hiring

### Research Engineer in Optical Instrumentation for the Development of *In Vivo* 3 Photon Microscopy

**Localisation** : CIRCUITPHOTONICS *In Vivo* Imaging Platform, Marseille, France

**Contract type** : Fixed-term contract (26 months)

**Contract start day** : June 1st, 2026

**Salary** : Approx. €37k/year depending on experience

**Supervisor** : Scientific and Technical Director, Rosa Cossart

**CIRCUITPHOTONICS** is a cutting-edge imaging platform dedicated to the functional exploration of neuronal circuits through *in vivo* imaging. It offers advanced technologies including 2- and 3-photon microscopy with photostimulation, high-speed 2-photon scanning, high-resolution photoacoustic imaging, and 2-photon endoscopy.

Located in Marseille, the platform operates jointly between **INMED** and **INT**, two institutes renowned for their expertise in neural activity imaging. It works closely with academic (Institut Fresnel, CENTURI) and industrial partners (Lightcore, DeepColor, Karthala, Bruker).

In this context, **CIRCUITPHOTONICS** and **Bruker** are seeking a highly motivated candidate to optimize the performance of the **Ultima2P+ system**, particularly by developing **3-photon microscopy** applications for **neuroscience**.

#### Main Responsibilities

##### 1. Instrument Optimization and Innovation :

- Improve optical performance of 3-photon microscopy (signal, resolution, speed, imaging depth).
- Implement advanced techniques such as adaptive optics (AO) to correct for tissue-induced aberrations.
- Optimize group delay dispersion (GDD) to maximize multiphoton excitation efficiency.
- Integrate and calibrate new optical/electronic modules for faster, more reliable acquisition.

## 2. Maintenance and Technical Development:

- Perform preventive and corrective maintenance of instrumentation.
- Develop diagnostic, calibration, and performance optimization protocols.
- Assist with installation and configuration of new scanning and detection technologies.

## 3. Scientific Collaboration and Training:

- Work closely with neuroscientists to adapt systems to experimental needs (in vivo imaging, animal prep, neuronal indicators).
- Train advanced users on system operation and maintenance.
- The engineer will receive training at Bruker headquarters to gain full expertise with the Ultima2P+ system.

## 4. Documentation and Technology Watch:

- Write technical protocols and performance reports (metrology).
- Keep up with advances in 2- and 3-photon microscopy, adaptive optics, and neuroscience instrumentation.

### Profile Sought

- **Education:** Master's degree or Engineering School (Bac+5) in applied physics, optics, photonics, or scientific instrumentation.
- **Experience:** 2–5 years preferred in optical instrumentation; experience in advanced microscopy for biological or neuroscience applications is a strong plus.
- **Technical Skills:**
  - Expertise in multiphoton microscopy (2- and 3-photon).
  - Proficiency in experimental and adaptive optics (lenses, deformable mirrors, scanners).
  - Knowledge of GDD optimization.
  - Skills in applied electronics (detectors, interfaces, acquisition systems).
  - Programming for control/acquisition: Python, MATLAB, or equivalent.
  - Strong communication skills in both French and English.
- **Personal Qualities:**
  - Scientific rigor and attention to detail.
  - Curiosity and creativity for proposing technical improvements.
  - Ability to work in a multidisciplinary team.

### Benefits and Working Environment

- Access to a state-of-the-art in vivo neuroscience imaging platform.
- Participation in innovative projects and diverse scientific collaborations.
- Opportunities for continuous training and professional development.
- Possibility to contribute to scientific publications and presentations.

**To Apply:** Please send your application to: [aurelie.picardo-carabalona@inserm.fr](mailto:aurelie.picardo-carabalona@inserm.fr)

Applications should include: a detailed CV, a cover letter, and two letters of recommendation.

**Application deadline:** March 6th, 2026