

PhD Position 13 job vacancy

Reference:	PP13
Title:	Combined Magnetic Resonance and X-ray phase contrast and dark-field to study Human embryonic and fetal development and its anomalies
Hiring institution:	Université Grenoble Alpes
Location:	Université Grenoble Alpes, Grenoble France
Start date:	As from 01 st January 2027
Duration:	36 months
Application deadline:	6 th May 2026

Job description

Objective:	<p>Human embryonic and fetal development is of major medical interest, particularly for understanding locomotor system formation. Genetic and environmental factors can cause developmental defects, making the study of normal and pathological fetuses essential for optimal clinical care. High-resolution, non-destructive 3D imaging would be a valuable tool in this context.</p> <p>This project aims to combine two complementary imaging modalities — MRI and X-ray phase contrast/dark-field imaging — applied to human embryo and fetal specimens under normal and pathological conditions. MRI studies will be carried out on the IRMaGe platform, a conjoint platform between the Grenoble Institut des Neurosciences (Inserm U1216) and CHU Grenoble Alpes, which disposes a 9.4T MRI machine for research purposes (Bruker, Avance III HD, Paravision 7). Phase Contrast and Dark-Field Imaging will be carried out either at the ESRF, the European Synchrotron in Grenoble or at Soleil near Paris.</p> <p>Their medical value will be assessed by their contribution to improved diagnosis compared to standard fetal pathological investigations (in utero or post mortem), or in situations where histological analysis is not feasible (before 14 weeks of gestation). Beyond diagnosis, this work will contribute to a better understanding of human development — including the central nervous system — and could ultimately support the development of virtual autopsy procedures as adjuncts to conventional macroscopic and immunohistochemical examinations.</p> <p>The doctoral fellow (DF13) will optimize sample preparation and data acquisition protocols, then focus on data analysis in collaboration with physicists, biologists, data scientists, and clinicians. He/she will also be responsible for writing the resulting scientific publications.</p>
Supervisors:	<p>Emmanuel Brun – emmanuel.brun@inserm.fr Emmanuel Barbier - Emmanuel.Barbier@univ-grenoble-alpes.fr</p>
Place of work:	<p>IAB Site Santé, All. des Alpes, 38700 La Tronche</p>

Required degree	Master's degree or equivalent in Medical Physics, Physics, Data Science
Skills/Experience:	The ideal candidate holds a background in imaging or image analysis, with sufficient physics knowledge to engage with X-ray and/or MRI principles, and the ability to rapidly acquire skills in tomographic reconstruction, phase retrieval, and image segmentation.
Keywords	X-ray Phase Contrast, Dark-field Imaging, Magnetic Resonance Imaging, Developmental Biology

Mandatory requirements

Eligibility:	<p>The doctoral fellow:</p> <ul style="list-style-type: none"> - should not have resided or carried out his/her main activity (work, study) in the country where he/she is being recruited, i.e., France, for more than 12 months in the 3 years before the application call deadline, unless this time was part of a compulsory national service or a procedure for obtaining refugee status under the Geneva Convention. - must be a doctoral candidate (not already in possession of a doctoral degree at the date of the application call deadline).
Languages:	Oral and written skills must meet the standards of academic English used in international research.

Job details

Type of contract:	Full time position
Gross salary:	<p>The monthly living allowance, including employer and employees' social charges, is €3,800. This amount corresponds to a <u>gross</u> monthly salary estimated to 2717€, and to an estimated net monthly salary before income tax of 2184€.</p> <p>On top of the monthly salary, the candidate will receive a mobility allowance, including employer and employees' social charges of €4752 over the 36 months of the working contract. This amount corresponds to a <u>gross</u> monthly allowance estimated to €132 and to an estimated net monthly allowance before income tax of approximately €119.</p> <p>Social Protection: The candidate will benefit from full social security coverage, including health insurance, unemployment insurance, and pension contributions. He/she will also have access to occupational health services (<i>médecine du travail</i>), as required by French labour law.</p>
Other benefits:	<p>Additional Insurance: The candidate may choose to subscribe to complementary health insurance plans, such as LMDE or SMERRA, at affordable rates (approximately €42 <i>per</i> month). Host institutions will provide 15 euros per month.</p> <p>Paid Leave: The candidate is entitled to up to 45 days of paid leave annually, in accordance with national labour law, and will enjoy the same employment rights as other public-sector employees, including student union membership.</p> <p>Transport: The candidate benefits from significantly reduced fares on public transport, available in all partner cities. Additionally, the host institution will cover 50% of the monthly transportation costs.</p>