Give your career a new dimension

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Postdoctoral research fellowship – Neutron plus X-ray Tomography of plants and bio-structures

3-year contract for project with project-specific funding

Applicants should be fluent in English, have good communication skills and should demonstrate their ability to develop and conduct high-quality research, both in a team and independently.

We are seeking a highly motivated postdoctoral research fellow to advance high-resolution imaging in biomaterials using the Institut Laue Langevin's Neutron and X-ray Tomograph (NeXT) instrument. This position will focus on investigating the potential of neutron imaging techniques for micro-structural analysis of biological materials. The successful candidate will work closely with Dr. Alessandro Tengattini, co-responsible for the neutron imaging instruments NeXT and MoTo at ILL, to develop innovative approaches in this cutting-edge research area.

Candidates must submit a research plan (3-5 pages, maximum 10 pages) directly related to this research topic, outlining work to be conducted during the fellowship period.

This research fellow position is part of the EU-funded Marie Skłodowska-Curie (MSCA) COFUND research project AMBER, Advanced Multiscale Biological imaging using European Research infrastructures, which aims to address scientific and sectoral gaps in biological imaging ranging from molecular, through cellular, to tissue, organ and organism levels of organisation, and is coordinated by the LINXS Institute of advanced Neutron and X-ray Science.

Around 15 postdocs will be recruited in the fifth call 2026, with each fellowship lasting 36 months.

As a research fellow at the AMBER programme, you will acquire unprecedented medical, biological, and methodological capabilities, with a profound potential impact for Europe’s next generation of research and researchers. When you have completed the AMBER programme, you will be extraordinarily well equipped to further your career in academia, at research infrastructures, in the health and MedTech sectors, and beyond. Your work may include technique development work aimed at combining imaging techniques and data analysis to provide a more integrated picture of life processes in the context of health and disease.

For more information about the total announced post-doctoral positions within in the AMBER co-fund project please visit **https://www.euraxess.se/jobs/392999**
The interviews will start in April/May 2026. For more information about AMBER, application and evaluation process etc., please visit: ambercofund.eu

- **Minimum requirements**
- PhD in structural or molecular biology, biochemistry, or biomedical engineering, ideally with excellent knowledge of programming. ***Researchers must be in possession of a doctoral degree at the deadline of the co-funded programme's call.*** *Researchers who have successfully defended their doctoral thesis with no major modifications but who have not yet formally been awarded the doctoral degree will also be considered as postdoctoral researchers and will be considered eligible to apply*
- Applicants need to have a maximum 8 years after a doctoral degree (PhD), as required by the European Commission, in accordance with the MSCA rules.
- a background in the relevant methods
- At least one original publication in a peer-reviewed journal.
- A complete application package submitted through the AMBER portal (including CV and detailed research plan).
- Strict compliance with the MSCA mobility rule that the researcher must not have resided or carried out his/her main activity (work, studies, etc.) in the host organisation's country for more than twelve months in the three years immediately prior to the call deadline.

Incomplete applications will not be considered. Please make sure that you upload all the required documents specified below i-ix.

Each project will have additional specific requirements that candidates have to fulfill, be sure to check what these are before you apply.

Applications shall be written in English and all documents shall be in pdf format.
i) A Curriculum Vitae (europass format). Your CV shall be exported to a PDF file that you use in your application.
ii) A detailed research plan including any foreseen secondments (candidates can suggest more than the mandated one, they can also suggest their own secondments), schools and conferences as well as a templated budget plan. (as concise as possible, recommended about 3-5 pages, but at an absolute maximum 10 pages). The research plan should include a half page of summary/abstract. Any use of generative AI tools to prepare the research plan must

be limited to basic author support (e.g., language editing, formatting), in line with the European Commission's living guidelines on the responsible use of generative AI in research.

Additional texts to include in the PDF are:
iii) Letter of Commitment from any additional secondment partners the candidate wishes to bring onboard.
iv) Evidence of English proficiency (minimum CEFR B2-2 also checked at interview).
v) A draft Individual Career Development Plan (ICDP).
vi) Two reference letters.
vii) Any additional documents to support the application.
viii) Ethical questionnaire (HE ethics checklist + research ethics commitment)

In addition, the application will require:
ix) Any candidate can apply for a maximum of 3 positions. You must apply for each individual position. A list with order of preference of positions should be sent to the AMBER management: **amber@linxs.se**

In the CV, References and Documents section, click on 'optional documents' and add under Misc. Documents: Letter of Commitment, proof of English language proficiency, Individual Career Development Plan (ICDP), two letters of reference (in the same PDF) and the Ethics Questionnaire.
You will send your research plan in the "Letter" section under "Important documents".

Context

This 3-year postdoctoral research fellowship is part of the EU Marie Skłodowska-Curie (MSCA) COFUND research project AMBER, Advanced Multiscale Biological imaging using European Research infrastructures. This project will address scientific and sectoral gaps in biological imaging ranging from molecular, through cellular, tissue, organ and organism levels of organisation, and is coordinated by the LINXS Institute of advanced Neutron and X-ray Science.

AMBER has six core partners: Lund University/MAX IV, Sweden, the European Spallation Source (ESS), Sweden, the European Molecular Biology Laboratory (EMBL), the Institut Laue-Langevin (ILL), France, the International Institute of Molecular Mechanisms and Machines (IMOL), Poland, and the Leicester Institute of Structural and Chemical Biology, United Kingdom. For more information about AMBER, visit: **https://www.ambercofund.eu**

Description of the Project

At the Institut Laue-Langevin (ILL), the world's most powerful steady state neutron source, advanced beamlines for neutron imaging are available. Notably, NeXT is a state-of-the-art tomographic facility that offers the highest spatio-temporal resolution for neutron (and simultaneous X-ray) imaging. This unique capability makes it an exceptional setting for pioneering scientific research and interdisciplinary collaboration. At NeXT, you will be immersed in an environment that not only places you at the forefront of advanced imaging techniques but also supports the development of innovative and impactful work/research in present-day society.

Neutron and X-ray tomography provide distinct yet highly complementary information. In biomaterials research, neutron imaging is particularly powerful because it is sensitive to hydrogen, enabling the study of hydrogen-rich phases and their spatial distribution in plants, bones, cartilage, and other biological tissues. Additionally, neutrons have minimal impact on the biological materials making it ideal for operando studies, where multiple subsequent tomographies are acquired while the sample evolves, for example under hydraulic or mechanical load. Neutrons also penetrate metals with minimal attenuation, allowing virtually artifact-free imaging of metallic components such as implants, while certain pollutants, including cadmium, produce strong neutron contrast. When combined with simultaneous X-ray imaging, these complementary modalities offer unique insights into internal structure, density variations, and composition.

Recently, our facility has achieved record neutron tomographic resolution (see, for example, **https://doi.org/10.1364/OE.448932**), opening new possibilities for high-resolution imaging of biomaterials—an area that remains largely unexplored. The combined use of neutrons and X-rays also presents significant untapped potential, including applications such as visualizing pollutants in plants.

We seek a highly motivated postdoctoral researcher to advance this line of research,

particularly in the study of biological systems and contaminants such as cadmium and microplastics using the NeXT instrument. The successful candidate will help push the boundaries of high-resolution imaging in biomaterials and explore the full capabilities of neutron imaging for resolving their microstructure. The work will be based at the Institut Laue Langevin and specifically at the Neutron and X-ray Tomograph NeXT-Grenoble. The project will have good access to state-of-the-art facilities.

Name and working place of the Principal investigator
Alessandro Tengattini, Large-Scale Structures group, Institut Laue-Langevin, Grenoble, France, is co-responsible for the neutron imaging instruments NeXT and MoTo. His research focuses on neutron and X-ray imaging for operando studies of porous media and coupled (bio-)chemo-hydro-mechanical processes at the micrometric scale.

Ce que nous vous offrons

Une qualité de vie A hub for research and technology, the city of Grenoble is ideally located in the heart of the French Alps (just 3 hours from Paris/Provence by train, 1 hour from Lyon international airport and 1 ½ hours from Geneva). It is important for us that our staff achieve a healthy work-life balance. We therefore offer home working (under certain conditions), generous annual paid leave entitlement and a host of other benefits that you will discover when you arrive!

Des perspectives We guarantee you a secure 3-year contract in the framework of a project with project-specific funding ("*contrat d'usage pour financement nominatif*"). Only candidates holding a PhD obtained less than 8 years ago are eligible.

Des avantages We offer generous social benefits (expatriation allowance, excellent health cover), moving and relocation assistance (under certain conditions) and an annual productivity bonus. We also offer language courses for you and your partner and subsidies for the use of public transport and the staff canteen, as well as for holidays and a variety of cultural and sports activities.The minimum gross salary will be approximately 4300€ per month.

Cela vous semble-t-il intéressant?

Then why not take your next career step with us by applying online - in English - via our career portal by **02.03.2026**, quoting reference number **26/02** with a list of publications and the names of 3 referees, including one from your present work place. Please note that all applicants are subject to administrative screening (background checks). For this post, medical fitness for work under ionising radiation is required.
We are committed to equal opportunities and diversity and therefore welcome applications from all suitably qualified candidates.

Candidature

L'Institut Laue-Langevin (ILL), implanté à Grenoble, est un centre international de recherche fondamentale, leader européen en sciences neutroniques. C'est notre passion pour le progrès et la technologie qui nous lie, et nous permet de faire avancer la science et la recherche au quotidien. Travaillons ensemble pour faire de notre société un monde meilleur.

www.ill.eu/careers