



Preliminary information. See [KTH's Job Vacancies Website](#) for any official announcement, which will also provide a link to the application portal, and other relevant information.

Postdoc in X-ray and neutron characterization of metals for AM

At the Department of Materials Science, we offer a postdoctoral position focused on in-situ and ex-situ synchrotron and neutron characterization of metallic materials processed using laser and electron-beam-based techniques, particularly within additive manufacturing (AM), welding, and heat treatment. The position is centered around the custom-built experimental environment developed at the Swedish beamline at PETRA III, beamline P21.2, where both electron-beam and laser processing can be studied in real time under controlled conditions.

The postdoctoral researcher will further develop the methodology for applying this experimental setup in close collaboration with internal and external partners, and will use it to generate new knowledge on the behavior of metals under rapid thermal cycles, such as those occurring during AM or laser welding. In addition to synchrotron experiments, the position will include work with complementary characterization techniques to build a comprehensive understanding of microstructure evolution and mechanical properties.

By combining advanced in-situ studies with ex-situ analyses, the project aims to deepen the understanding of phase transformations, melt-pool dynamics, solidification, as well as the properties of processed materials in end-use applications, for example by studying their behavior under quasistatic or cyclic loading.

This research is central to enabling the development of new materials and processing solutions that support sustainable industrial transformation, for example within manufacturing industries or energy-producing sectors. The results generated will be important for advancing circular material flows, reducing scrap, and increasing the use of recycled raw materials.

The position offers a unique opportunity to work at large-scale research infrastructures, develop measurement methodologies and data-analysis approaches for real-time studies, and collaborate closely with both academic and industrial partners, nationally and internationally, to address important, needs-driven materials and process challenges. The postdoctoral researcher will play a key role in advancing research on electron-beam and laser processing of metals and their final properties.

This postdoctoral position is particularly attractive for researchers in materials science with a characterization profile oriented toward large-scale infrastructures (synchrotron and neutron facilities), and with a desire to deepen their expertise and expand their capabilities in physical metallurgy and materials characterization. The postdoctoral researcher will have excellent opportunities to collaborate closely with academic and industrial partners in Sweden.

What we offer

- A position at a leading technical university that generates knowledge and skills for a sustainable future.
- Engaged and ambitious colleagues along with a creative, international and dynamic working environment
- Work in Stockholm, in close proximity to nature
- Help to [relocate and be settled in Sweden and at KTH](#).
- Opportunity to develop network a national and international network in academia and industry for metallic materials research.
- Opportunity to develop in a broad range of materials characterization instruments at Hultgren laboratory at KTH and at a broad range of international large-scale research infrastructures.

[Read more about what it is like to work at KTH](#)

Requirements

- A doctoral degree or an equivalent foreign degree in materials science or closely-related area for the proposed research. This eligibility requirement must be met no later than the time the employment decision is made.
- Research experience in materials characterization, particularly synchrotron light and neutron characterization such as e.g. diffraction, small-angle scattering (WAXS, SAXS, ND, SANS) and imaging, evidenced by a track record of journal publications and international conference presentations.
- The ability to express yourself very well in English, spoken and written, as this will be required in day-to-day work.
- You are self-motivated with a strong ability to take initiative and run projects

Preferred qualifications

- Extensive experience in data analysis for synchrotron light or neutron characterization of metallic materials.
- Experience with electron-beam and/or laser processing of metallic material
- Experience in characterization of mechanical behavior, phase transformations or/and precipitates in metallic materials.
- Experience with lab-scale characterization of metallic materials, e.g. SEM, XRD.

Great emphasis will be placed on personal skills.

As a person, you have well-developed analytical and problem-solving skills and like to take responsibility. You have strong collaboration skills including the ability to lead and to support research.

Trade union representatives

You will find contact information to trade union representatives at [KTH.se](#)

To apply for the position

Log into KTH's recruitment system in order to apply for this position. You are responsible to ensure that your application is complete according to the instructions in the ad.

Instructions: Feel free to insert the items below so that you receive the documentation you need for the selection process. The application must include:

- CV including relevant professional experience and knowledge.
- Copy of diplomas and grades from your previous university studies. Translations into English or Swedish if the original documents have not been issued in any of these languages.
- Brief account of why you want to conduct research, your academic interests and how they relate to your previous studies and future goals. Max two pages long.

Your complete application must be received by KTH no later than the last day of application, midnight

CET/CEST (Central European Time/Central European Summer Time).

About the employment

The position offered is for, at the most, two years.

A position as a postdoctoral fellow is a time-limited qualified appointment focusing mainly on research, intended as a first career step after a dissertation.

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