

The ESRF is a multinational research institute, situated in Grenoble, France and financed by 18 countries mostly European. It operates a powerful synchrotron X-ray source with some 30 beamlines (instruments) covering a wide range of scientific research in fields such as biology and medicine, chemistry, earth and environmental sciences, materials and surface science, and physics. Research at the ESRF is carried out by several thousand external users each year from universities, public research laboratories and industry, and by the ESRF's own scientists. The ESRF employs about 600 staff and is organized as a French *société civile*. The working language of the ESRF is English.

The Experiments Division designs, constructs and runs the ESRF experimental stations (= beamlines). Within this division the X-ray Imaging group is now seeking to recruit a:

PhD Thesis Student (m/f)

Subject: X-ray Talbot interferometer imaging

General Framework:

X-ray phase contrast imaging is a technique that allows to visualize and quantitatively analyze the internal microstructure of bulk objects, even in cases where traditional X-ray absorption contrast cannot reveal the structure. Just like standard radiography, it can be used to obtain two-dimensional projection radiographs or three-dimensional volume data (tomography).

Talbot interferometry is an emerging X-ray phase contrast method that can make phase contrast accessible in regions where established methods have not succeeded. A substantial part of the development of this technique has so far been performed at ESRF. A project was recently started to build and install a Talbot interferometer at the ESRF tomography beamline ID19.

Description of the thesis work:

During your PhD thesis work, you will:

- investigate the influence of instrumental parameters on image quality, both by experiments and computer simulations of coherent image formation (with an existing code);
- quantify the performance characteristics of the method in comparison to other imaging methods;
- apply grating interferometry to relevant scientific problems, within the framework of existing collaborations (paleontology, medical imaging) or to new projects.

Place of Work: ESRF in Grenoble

Supervisor: T. Weitkamp (+33 (0)4 76 88 26 41, weitkamp@esrf.fr)
J. Baruchel (+33 (0)4 76 88 21 01, baruchel@esrf.fr)

General Conditions:

You should hold a degree in Physics allowing enrolment for a PhD, such as an MSc, Master 2 de Recherche, Laurea or equivalent. You should have an interest in experimental work and the physics of coherent X-ray imaging. Contract of two years renewable (subject to satisfactory progress) for one year. Gross salary around 2181 €/month. (The applicant will be responsible for arranging his/her academic registration and for paying the fees (if any)). The ESRF is an equal opportunity employer and encourages applications from disabled persons.

If you are interested, please send us a fax (+33 (0)4 76 88 24 60) or an e-mail (recruitm@esrf.fr) with your address, and we will provide you with an application form. Or print out an application form on the World Wide Web <http://www.esrf.fr/Jobs/Applying>. In addition to the application form, you should provide us with a detailed CV and the names of two referees.

Ref. CFR338 - Deadline for returning application forms: 27 August 2008

All applications received after the deadline may be considered for the selected vacancy if not filled or for future similar positions.

ESRF, Personnel Service - Recruitment
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