



Postdoctoral position in x-ray coherent diffraction imaging

A **36-month postdoctoral position** is available, from September 2017, at Institut Fresnel in Marseille, France, an academic joint laboratory of Aix-Marseille University, CNRS and Ecole Centrale.

Our group [1] is developing coherent diffraction imaging microscopy for optics and x-rays (synchrotron). Those approaches are based on the possibility to retrieve an image from the information encoded in the diffracted intensity signals.

In the framework of a project funded by the European Research Council (ERC Consolidator 3D-BioMat), we want to explore the possibilities offered by a newly proposed x-ray microscopy called 3D Bragg ptychography [2, 3]. This microscopy gives access to the detailed description of the crystalline properties of nanostructured crystals. Its on-going implementations at several synchrotron beamlines worldwide open exciting perspectives for material science researches.

Position

The post-doctoral position focuses on the development of 3D Bragg ptychography. The proposed research project aims at producing a high throughput microscopy, based on improved inversion algorithms. It includes the assessment of the performances and limits of this microscopy and the transfer of knowledge towards the synchrotron community. The foreseen work is mostly theoretical and numerical, with however the perspectives of performing experimental tests at synchrotrons. This microscopy will be exploited in the group to reveal the detailed structures of various biominerals.

The postdoc will work under the direct supervision of a CNRS senior scientist.

Requirements

- PhD degree in theoretical or experimental physics, coherent optics, coherent x-ray diffraction, crystallography or a related discipline.
- Sound knowledge of computer programming, data analysis
- Experience working at a synchrotron or another major research facility will be considered as an asset, although not mandatory.

Terms of employment

The position is a three-year full-time appointment under contract with the French National Centre for Scientific Research (CNRS), starting preferentially on September 2017. Gross salary will depend on the experience of the employee, up to approx. 43,000 €/year (net salary: up to approx. 34,000 €/year).

Application

Candidates are requested to submit:

- a detailed CV
- 2 publications
- 2 reference names

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Selection will be based on merit and potential, measured in terms of the academic record and personal achievements. Creativity, proactivity and capacity for teamwork will also be taken into account.

Deadline

July, 1st, 2017

References

[1] www.fresnel.fr/comix

[2] P. Godard *et al.*, Nature Communications (2011), 10.1038/ncomms1569

[3] S. Hruskewycz *et al.*, Nature Materials (2017), 10.1038/nmat4798

Contact project Principal Investigator for further information

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