

POST-DOCTORAL RESEARCHER IN BIOMEDICAL ENGINEERING (ULTRASOUND, BONE MECHANICS)

A **2-years** postdoctoral position is available at University Pierre et Marie Curie (UPMC, Paris, France). The researcher will work at the Biomedical Imaging Laboratory (<https://www.lib.upmc.fr/>) in the group DBMS (Determinant of Bone Mechanical Status).

The main research interests of the group DBMS are (1) to develop ultrasound technologies and to establish novel ultrasound biomarkers of cortical bone mechanical status, and (2) to investigate relationships of these biomarkers to bone structural and material properties (ex vivo) and to bone fragility (in vivo). During the post-doc, two techniques recently developed in the lab will be used to investigate cortical bone properties. First, the post-doc will use Resonant Ultrasound Spectroscopy (RUS) to characterize ex vivo the elastic and viscoelastic behavior of mm-scale cortical bone specimens. A focus will be put on the relationships between viscoelastic properties and ultrastructural properties. Second, s/he will also be involved in a research aiming at quantitative assessment of cortical thickness, stiffness, and porosity using guided waves propagation by multidirectional axial transmission.

The project is part of a Franco-German collaborative research program (ANR TaCo-Sound) and of a national collaborative research program (ANR MULTIPS). The researcher will be mainly responsible for conducting experiments, mechanical and wave propagation modeling, data processing and interpretation. In this context, s/he will interact with a Franco-German consortium (Paris-Lyon-Grenoble-Berlin-Kiel) and will contribute to experiments and data analysis using various imaging modalities (synchrotron X-ray tomography and small-angle X-ray scattering, acoustic microscopy, Fourier transform infrared spectroscopy) and mechanical testing. In addition, the post-doc will be required to help writing research articles and supervising graduate and undergraduate students working in the laboratory.

Qualifications: Applicants with a PhD in biomedical engineering, acoustics, or mechanical engineering will be considered. The successful candidate should have extensive research experience in some of the following fields: physical acoustics, physical measurements using ultrasound, mechanical testing of biological tissues, bone biomechanics. Basic writing and programming skills (Matlab) are required.

Financial conditions are based on the CNRS (French National Center for Scientific Research) postdoctoral grants, and depend on the years of experience of the candidate.

Information and applications: Candidates are invited to contact Quentin Grimal for additional information and to submit their application (including letter of motivation, CV, publication list, degree certificate, and name and contact information to at least two referees). **Applications will be considered until June, 30th 2015.**

Contact: Quentin Grimal, quentin.grimal@upmc.fr, Phone: +33 144 414 972

Links:

- UPMC <http://www.upmc.fr/>
- Biomedical Imaging Laboratory (LIB) <https://www.lib.upmc.fr/>
- ANR TaCo-Sound: https://www.lib.upmc.fr/?page_id=574&lang=en and <http://www.b-crt.de/ausbildung/bsrt-professuren/kay-raum/projekte/dfg-anr-taco-sound/>
- ANR MULTIPS: https://www.lib.upmc.fr/?page_id=459&lang=en