

## **two Early Stage Researcher (PhD Student) positions (Computational Modelling) in the Department of Applied Physics, Kuopio Campus**

We are seeking two highly motivated and talented PhD students (Early Stage Researchers) to work full-time on an Academy of Finland funded research project focused on '*computational modelling in spectroscopy*'.

The project will be conducted in the Biophysics of Bone and Cartilage (BBC) research group, at the Department of Applied Physics, University of Eastern Finland, Kuopio, under the supervision of Academy Research Fellow Isaac Afara and other senior members of the research team. The BBC group is a global leader in the biophysics of bone and cartilage, and consists of >40 researchers applying experimental, computational and clinical approaches for understanding and development of innovative techniques for diagnosis of joint diseases. See: <http://luotain.uef.fi/>

The project aims to provide basic understanding of light interaction in connective tissues that could improve optical assessment of connective tissue in arthroscopic surgery. The primary tasks of the PhD students will include laboratory experiments on soft tissues (e.g., articular cartilage), computational modelling of photon transport and interaction in connective tissues using Monte Carlo simulation, diffusion approximation, finite element, and finite difference time domain (FDTD) methods. The PhD students will also be responsible for preparation of personal grant applications, and other tasks assigned by the supervisor.

Candidates who are currently completing or have recently completed a Master's degree or equivalent are invited to apply. However, a person to be appointed as an early stage researcher shall be qualified to pursue postgraduate studies, i.e. he or she is required to have completed a suitable higher university degree or an equivalent education abroad, which in the country in question would qualify the person for similar academic studies. The positions are suitable for candidates with background in fields of *applied mathematics, biophysics, medical physics, biomedical engineering or related fields*.

### **Experience and Skills**

*Minimum:*

- M.Sc. in any of the aforementioned fields, preferably within the last 2 years
- Working knowledge on approaches for solving ODEs and PDEs
- Strong programming skills in MATLAB, Python, C++, etc. (the more the better)
- Basic knowledge in optics and/or spectroscopy

- Fluency in spoken and (especially) written English for technical communication.

*Desirable:*

- Knowledge on numerical and analytical solutions of integro-differential equations
- Experience in laboratory experiments
- Good publication track record
- Working knowledge in chemometrics (e.g., PLSR) and deep learning (e.g., CNN).

The salary of the position is based on levels 2-4 of the job requirement level chart for teaching and research staff (€1,985.85–€2,475.31/ month) in the Finnish Universities' Salary System. In addition to the job requirement component, the salary is supplemented by a personal performance component, which can be a maximum of 46.3% of the job requirement component. The salary is determined in accordance with the phase of the doctoral dissertation and personal performance.

The doctoral student positions (early-stage researcher positions) will be filled as from September 1, 2018 to August 31, 2020, or as agreed. Continuation of the position will be agreed separately. The maximum duration of the doctoral student positions is four years.

The position of early stage researcher shall always be filled for a fixed term (UEF University Regulations, Section 31).

For further information on the positions, please contact: Academy Research Fellow Isaac Afara, email: [Isaac.afara@uef.fi](mailto:Isaac.afara@uef.fi), tel. +358 50 350 1905 (email is preferable). For further information on the application procedure, please contact: Executive Head of Administration Arja Hirvonen email: [arja.hirvonen@uef.fi](mailto:arja.hirvonen@uef.fi), tel. +358 44 716 3422.

A probationary period is applied to all new members of the staff.

**The electronic application should contain the following appendices:**

- a cover letter describing motivation for this position and earlier research experience
- a résumé or CV
- a list of publications
- copies of the applicant's academic degree certificates/ diplomas, and copies of certificates / diplomas relating to the applicant's language proficiency, if not indicated in the academic degree certificates/diplomas

- Full name and e-mail addresses of 1–2 referees

The application needs to be submitted no later than August 15, 2018 (by 24.00 hours Finnish time) by using the electronic application form (please, do not send applications by email).

Please follow the link below and click on the "**apply for the job**" link to submit your application.

<https://www.uef.fi/en/uef/en-open-positions>