



Postdoctoral Researcher – Quantum Magnetometry

PostDoc Position

Posted on 01 April 2016

Ural Federal University

Russia, Ekaterinburg

This job posting expired on July 01, 2016.

JOB DESCRIPTION

Postdoctoral Researcher in Quantum Magnetometry at the Quantum Magnetometry Laboratory of Institute of Physics and Technology.

Deadline for applications: June 01, 2016.

Project description

Overhauser dynamic nuclear polarization and EPR spectroscopy of stable organic radicals for MRI and quantum magnetometry.

Overhauser method of dynamic nuclear polarization are receiving prevalence as an analytical method. It is primarily used to amplify the NMR signals, but also has independent significance, having a specific sensitivity to different types of spin-spin interactions [1], in particular for MRI hyperpolarization in the presence of spin exchange between spin labels [2]. Synthesis was mastered and made use of in the field of quantum methods for measuring the magnetic fields of the original stable radicals, which have the effect of light saturation, providing marginal gains even in the presence of the super-structure of the EPR spectrum, which allows to determine, for example, the spin exchange constant.

Work is proceeding on program in "Biotechnology, bioengineering and sensorika (Magnetic Sensology, magnetic sensors)" and "Cognitive electronic systems".

New equipment is supposed to be transformed and introduced based on the well-known FC NMR relaxometer of the Italian company Stellar or analogous, namely, sensor development DNP for NMR relaxometer. Development and modernization of the software. Conducting research in development and application of methods for the DNP, EPR and NMR relaxometry aimed at creating new relaxation and hyperpolarizing agents for MRI and quantum magnetometry.

Terms of employment

The position involves a full-time employment for 12 months, with the possibility of further extension up to 24 months. The position is full-time (nominally 40 hours a week). Remuneration for this position will be about 1 million Russian rubles in year.

The place of employment for this position is the Electron Microscopy Laboratory of Institute of Natural Sciences.

Accommodation

The postdoctoral researcher will be offered a 1-bed room apartment at a brand new apartment building near the main UrFU campus (about 5 min walk to the place of employment and 15 to 20 min walk to the city centre).

DESIRED SKILLS AND EXPERIENCE

Qualification requirements

The Competition may involve the academic staff (scientists) under the age of 35 who have received the degree of Candidate of Sciences or PhD not more than seven years before the announcement of the Competition and involved in research activities, English-speaking, with publications in internationally reviewed journals included in the 'Web of Science' and 'Scopus' databases.

Special requirements to the participant of postdoc tender:

- Combining competencies in the field of theoretical and experimental methods of NMR spectroscopy with the ability to design radio-electronic systems high and ultrahigh frequencies.

Application

The application must include:

- a questionnaire of a participant of the competition of Postdocs (Appendix 2);
- a contest of the Competition participant for placement of information contained in the application (except for contact information) on the UrFU website;
- a copy of a PhD or a Candidate certificate;
- 5 most significant publications in refereed journals (copies);
- a certificate in English proficiency not below the B2 level (CEFR) or a comparable document issued by a specialised centre of UrFU;
- performance indicators (Appendix 3).

Please send your application no later than 01 June 2016 by e-mail as a single PDF file, by using the **APPLY** button.

ABOUT THE EMPLOYER

Information

Further information on the Ural Federal University can be found at <http://urfu.ru/en/>.

For inquiries, please contact Head of Quantum Magnetometry Laboratory Vladimir Alexandrovich Sapunov vasapunov@urfu.ru

Union representatives

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URAL FEDERAL UNIVERSITY (UrFU) is one of the largest higher educational institutions in Russia bringing together fundamental education and innovative approach towards the challenges of modern times. The university is committed to contribute to global society by promoting a world-class research and learning environment and attracting people with the greatest potential to make a difference.

Looking towards 2020, the 100th anniversary of our founding, the primary component of our strategy is to develop our University as a place where research, teaching and learning take place in ways that are inspirational and innovative.