

General information

Reference: FLNP JINR-PostDoc-2019-10

Workplace : Frank Laboratory of Neutron Physics JINR (FLNP JINR)

Date of publication : November 1st, 2019

Type of Contract : research fellow

Contract Period : 12 – 36 months taking into consideration the results achieved during the 12 months

Expected date of employment : 15 May 2020

Proportion of work : Full time

Remuneration : approximately 30000 USD gross per year payed in rubles. Final amount will be commensurate with qualifications and experience. 13% income tax is applied in accordance with the RF regulations. Social package: see additional information bellow

Desired level of education: PhD

Experience required 2 to 5 years of postdoctoral experience.

Missions

FLNP JINR has significant experience in investigation of condensed matter with neutrons and a specialized Sector dealing with Raman, SERS and CARS spectroscopy and microscopy of various biological objects, exploration of structural and spectral characteristics of phosphors activated with various rare-earth elements (REE) and plasmon enhanced photo- and upconversion luminescence studies.

The objective of the proposed project is the development of the theoretical model of nonlinear optical processes in Raman microspectroscopy based on the interaction of picosecond pulse trains with plasmonic surfaces.

Activities

Research work on modeling processes aimed at the development of highly sensitive, spectrally selective and reproducible registration methods of nonlinear laser micro-spectroscopy of Raman scattering of light, and first of all, coherent anti-Stokes Raman scattering spectroscopy (CARS), using a wide class of organic analyte molecules, localized on nanostructured surfaces, providing surface-enhanced Raman scattering (SERS) by these molecules, with the use of ultrashort (picosecond) laser pulses – SECARS. Possible supervision of students and internships.

Skills

The candidate should have a PhD in theoretical physics and proven experience on the development of models related to nonlinear processes arising from the interaction of ultrashort laser pulses with SERS-active plasmonic substrates. English proficiency.

Work Context

WORKPLACE: The research activities will be implemented in close collaboration with the staff members of Raman spectroscopy sector, FLNP JINR as well as with collaborators from the Moscow Institute for General Physics of RAS and others.

Constraints and risks

The postdoctoral fellow will be expected to undertake international travel.

Additional Information

Applications should include a detailed CV, a brief statement of research interests, list of publications and at least two letters of reference forwarded to Dr. Otilia Ana Culicov culicov@nf.jinr.ru before February 1st 2020.

Social package offered by JINR:

- The employer offers free health insurance covering medical services in the frame of the Russian compulsory medical insurance system.
- The employer will pay no pension insurance.
- The employer can offer accommodation in its own apartments (one-, two- or three-room flat depending on the number of family members) in the limits of availability and the laboratory can partly offset the rent expenses.
- Half price access to the JINR Olympic-size swimming pool and preferential access to the sport infrastructure of JINR.

Short-listed candidates will be invited to an interview, remotely, or in person.