POSTDOCPOSITION AVAILABLE

Field: Chemistry/Physics
Description:
Title of the position**: Postdoct in Interdisciplinary Laboratory of Biological Systems Modelling**
Scientific discipline: Chemistry/Physics/Biophysics
Job type: Contract
Number of job offers: 2
Remuneration/Stipend amount/month: 8000-10000 PLN/month
Position starts on: 02/09/2019
Maximum period of contract/stipend agreement: 1 years up to 3 years
Institution: Centre of New Technologies, University of Warsaw
Project leader: Joanna Sulkowska, associate professor
Project title: Mysteries of entanglement - proteins, life and physics
Project Description:
The goal of this project is to develop new methods to apply experimental data from NMR and optical traps to expand our knowledge of **proteins with non-trivial topology**. Currently it is still not known how to untie experimentally knotted proteins by chemical or thermal denaturation. Therefore our goal is to determine their function and the folding process (the free energy landscape) through the single molecule level approach (AFM, optical traps). Moreover, to fully understand these exotic structures, their degradation in proteasome will be investigated via the NMR (in deuterated water). The role of applicant will be to include these data into computational study. Thus, through the use of multiscale computational methods, we will investigate on one hand the conformational stability, the strength of the internal interactions, as well as routes to tie/untie proteins, and on the other hand we will use state-of-the-art methods to take into account non-trivial topology of investigated proteins. In this work we will use a combined coarse grain and explicate solvent molecular dynamics / replica exchange approaches and statistical mechanics methods to determine unbiased landscape of proteins with non-trivial topology.

Profile of candidates/requirements:
The successful post-doc candidate will have a PhD degree in physics/chemistry or related discipline, very good experience in conducting molecular modeling, multiscaling modeling. Experience with high-performance computing, knowledge of Python and scientific computing libraries and Linux environment is necessary. Although not required, any previous experience in investigation of proteins on the single molecule level would be welcome. Scientific achievements confirming the qualifications will be required (at least two significant publications after finishing PhD studies or a previous post-doc). PhD should be obtained no sooner than 7 years before the starting year of the employment in the project.

Required documents:
Two letters of recommendation, a copy of a PhD certificate (PhD obtained no sooner than 7 years before the starting year of the employment in the project), short CV (up to two A4 pages), motivation letter.

We offer:
An opportunity to participate in a multidisciplinary project in one of the best scientific institutions in Poland. Stimulating, young and friendly work environment. Access to high-end computing equipment (CPU clusters). Opportunity to participate in COST network and various EMBO workshops.

Please submit the following documents to:
Applications should be submitted by e-mail to Joanna Sułkowska (jsulkowska@cent.uw.edu.pl) no later than 31st of August 2019 with the term "Postdoc position in ILBSM" as email's topic. Following an initial screening of the applications, selected candidates will be contacted by e-mail for further recruitment steps.

To allow us to process your data, please include the following statement in your application:

"I hereby consent to have my personal data processed by the University of Warsaw with its registered office at ul. Krakowskie Przedmieście 26/28, 00-927 Warszawa for the purpose of carrying out a recruitment process and selecting an employee and concluding a contract for employment at the University of Warsaw. I have been informed of my rights and duties. I understand that provision of my personal data is voluntary."