Postdoctoral Fellow in Lattice QCD

Closing date: 18th of January 2019

The Cyprus Institute (CyI) is a non-profit research and educational institution with a strong scientific and technological orientation, emphasizing international collaborations and cross-disciplinary research and post graduate education. CyI, through its established research centers, addresses challenging issues that are important at both the regional and international levels. Many of its research activities are being carried out in partnership with leading institutions in the respective thematic areas.

CaSToRC is looking for two (2) postdoctoral fellows in large scale simulations of quantum filed theories with strong experience in HPC including novel computer architectures. The successful candidates will work within a team of scientists at the Cyprus Institute for the development of lattice QCD software of next generation supercomputers. The positions are part of a joint effort funded by the 6th Implementation Phase of PRACE (http://www.prace-project.eu/) to prepare European application codes for exascale systems. Within the sub-project led by CaSToRC, with partners at INRIA in France and LRZ in Germany, the selected candidates will develop and optimize linear solvers, including Krylov Block and multigrid methods, use advanced parallel approaches, and enable software on novel innovative computer architectures.

The post-doctoral fellows will be involved in the research of the local group which is a member of the Extended Twisted Mass Collaboration (ETMC). The group carries out common projects within the collaboration and notably with the groups at DESY-Zeuthen, Bonn, Frankfurt, Rome and Temple University. Beyond ETMC, members of the group maintain collaborations with the lattice QCD groups at the Jülich Supercomputing Center, Wuppertal University, and the Massachusetts Institute of Technology.

The appointment will be on a full time basis, initially for a fixed-term period, with the potential of renewal depending on performance and availability of funds.

Responsibilities

- Participation in the research activities of the lattice QCD group at CaSToRC
- Development and evaluation of new solver algorithms, suitable for next-generation supercomputers
- Implementation of codes in community software packages
- Coordination with lattice QCD community software developers for implementing lattice QCD libraries in community codes
- Coordination activities within the PRACE community software development activities such as coordinating with partners for synchronising, monitoring and reporting on progress of software development projects.

Required Qualifications

- PhD holder/candidate in Physics, Applied Mathematics (Applications will be accepted by students as well under the condition that the PhD will be completed by the end of 2019)
- Strong academic track record (publications, presentations at international conferences)
- Strong computational background
- Experience with High performance computing
- Demonstrated experience with large scale simulations and linear solvers
- Data analysis
- Background in basic programming languages like C, C++ or Fortran
- Background in parallel programming using MP
- Knowledge in linear algebra
- Ability to multitask and change priorities with minimum supervision
- High level organizational, analytical and problem solving skills
- Excellent knowledge of office IT
- Highly motivated with the ability to work independently
- Good communication and interpersonal skills and the ability to adapt to a multicultural, multinational environment
- Excellent knowledge of the English language both verbal and in writing.

Preferred Qualifications

- Experience with using and programming iterative solvers, such as multigrid solvers, Krylov block solvers, or others
- Experience in using and preferably programming GPUs and/or other optimizing computational kernels in general

Application

For full consideration, interested applicants should process their application at The Cyprus Institute JobBoard (http://jobboard.cyi.ac.cy/) based on the instructions given. Applicants should submit a curriculum vitae including a letter of interest and a list of three references (including contact information) and if available, a portfolio of software developed (e.g. a github repository or similar) (all documentation should be in English and in PDF Format). For further information, please contact Prof Constantia Alexandrou, (director.castorc@cyi.ac.cy). Please note that applications which do not follow the announcement's guidelines will not be considered.

Recruitment will continue until the position is filled.

Reference letters: 3

Contact person: Prof Constantia Alexandrou

Reference number: CaSToRC_PDF_18_03