The Abdus Salam
International Centre for Theoretical Physics

UNESCO
United Nations
Educational, Scientific and
Cultural Organization

IAEA
International Atomic Energy Agency
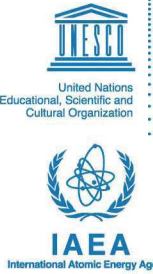
Advanced School on High Performance and Grid Computing

11 - 22 April 2011

(Miramare – Trieste, Italy)

HPC and Grid Computing is having a major impact in many areas of physics, chemistry, biology, engineering; as well as in material, environmental, and social sciences. The traditional education for scientists who design, implement and use their scientific software is focused mainly on explaining the physical principles their codes are founded upon. For this reason, there is an ever-growing need to provide an equivalent background in computer skills, to maximize the scientists' ability to use HPC/GRID technologies, and to improve their applications performance. This becomes more and more important with the emergence of novel computing architectures based on many/multi-core CPUs, the increased role of GPGPUs etc.

The goal of this advanced school is to provide young scientists and engineers already active in computational sciences with key additional skills necessary to identify and employ the right computing infrastructure to run their numerical simulations and solve computational intensive problems. Topics will include the GPGPU role in HPC, interoperability issues among different computational infrastructures, tools and libraries for scientific data management, design and installation procedures of medium size computational facilities.

The school will be held for a period of two weeks. The first week shall be dedicated to an advanced introduction to e-Infrastructure for HCP and GRID computing, with the emphasis on their practical use. Theoretical lectures will be combined with the practical exercises in a computer laboratory where students will practice the concepts discussed during the lectures. The second week is dedicated totally to the running of personal/and or group projects in our laboratory. Also a number of short seminar lectures on advanced topics shall be presented by HPC and GRID experts.

Students will work actively on their own specific computational problems, adapting them to the e-Infrastructure environment of their choice. Please note that the selection process shall be on the basis of scientific relevance and excellence of computational projects of applicants to be submitted to the programme's second week. Applicants are required to be experienced Linux users and some background in using HPC and/or GRID infrastructure for computational sciences is needed to fully benefit from this School.

PARTICIPATION:

Scientists and engineers from all countries who are members of the United Nations, UNESCO or IAEA may attend. They should hold a university degree or postgraduate degree/diploma in physics, engineering or related subjects. The School will be conducted in English, therefore participants must have adequate language knowledge. Although the main purpose of the Centre is to help researchers from developing countries, graduate students and post-doctoral scientists from developed countries would equally benefit from the School and are encouraged to apply.

Online Application is available on the website:

http://cdsagenda5.ictp.trieste.it/full_display.php?smr=0&ida=a10135

HOW TO APPLY FOR PARTICIPATION: The link above will guide candidates to a step-by-step application process and submission of the same - deadline is **12 January 2011**. In view of the School programme, **submission of a short research project is a requisite,** this should be attached to the online form by additional page - those without cannot be considered. The selection process shall take into account the quality and the feasibility of such projects.

DIRECTORS

Stefano Cozzini
CNR-IOM/Democritos and eLab SISSA, Trieste, Italy

Antun Balaz
Scientific Computing Laboratory, Institute of Physics Belgrade, Serbia

Giuliano Taffoni
INAF/IASF-Bologna and INAF-SI Bologna, Italy

DEADLINE

12 January 2011