

Preface of OSSC-2009

Welcome to the “First International Workshop on Open-source Software for Scientific Computation (OSSC-2009)”. We wish this workshop will be an exciting forum for all participants to exchange the ideas and experiences in the subjects of open-source software for scientific computation. We also hope all participants will enjoy the workshop programs as well as the beautiful city of Guiyang, China.

The theme of OSSC-2009 is “*Open Science and Open Education*”. This theme reflects our perspective towards the importance of open-source culture and practices for scientific computation and its education from the considerations at the following two levels.

First at an ideal level, we believe that the scientific computation, which falls within the disciplines of computational science and engineering, will carry more implications of principles of “openness” and “sharing” for its development. Mankind history has manifested that this world would never be civilized without knowledge sharing. Similarly, computer and its software would never come into being if the open knowledge of binary systems is not available to the public, such as for education purposes. Over two thousands years ago, the great Chinese educator and philosopher Confucius (551 BC – 479 BC) proposed the concept of “*Education for all without discrimination* (or “有教无类” in Chinese with Pinyin as: *yǒu jiào wú lèi*). Ideally, we expect that every young people should have rights to access computer software for their basic learning needs, such as the skill training in using scientific computing software.

Second at a practical level, scientific computation is under increasing demands for open-source software from the respective communities because “*the reproducibility of experiments requires having complete software and full source code for inspection, modification, and application under varied parameter settings*” (Stephane Mallat, 2009, “A wavelet tour of signal processing: The sparse way”, 3rd ed., Academic Press). At the same time, a number of industrial companies in software engineering and information technology fields have adopted the open-source models for their business strategies in order to enlarge business scale or obtain competitive power. According to a recent report (<http://www.top500.org/>), 19 of the top 20 supercomputers in the world are using open-source operating systems and the significant duties of supercomputers involve advanced scientific computations. In contract to the “black box” feature of closed-source software, open source software preserves several unique and important advantages over its counterpart paradigm in scientific computations. Up to now, it has already shown a whole range of extremely interesting activities about OSSC from a variety of application backgrounds. However, we still face plenty of issues and challenges towards open-source software development and applications.

The aim of organizing the OSSC Workshop series is to bring together the researchers and developers who are interested in the development for, education on, and application of open-source software for scientific computation. Thus we can exchange what we have done, and discuss what and how to promote OSSC. In this Workshop we adopt the following format to boost the participation of the attendees and effectiveness of the discussion, i.e. oral presentation of the works first by authors and then following by posters for individual discussions. After the Workshop, the full papers will be collected, and these will go through a peer-review process. All accepted full papers will be published in the “Proceedings of OSSC-2009” and be made available on IEEE Xplore with their indexing.

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