Summary of the organization of the conference

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Abstract:
I briefly report the story of the preparation of the conference, focusing on how we worked for organizing the Japanese committee, the international committee, and the local organizing committee, and on how we composed a very inter-disciplinary technical program with the help of about 200 computational scientists. I will briefly describe how we tried a new idea for inter-disciplinary parallel sessions in numerical methods and for a panel discussion on the relation between computational science and citizens. We had 404 attendants from 37 countries/regions. This report has been written as a reference for those who are organizing an international conference and will hopefully help them in establishing a local organizing committee that really works and in obtaining the money necessary to run the conference.

The 24th IUPAP-CCP was held on October 14-18, 2012, in Kobe, Japan. I would like to report its overview as organizer of the conference. The IUPAP is the International Union of Pure and Applied Physics (http://www.iupap.org/). It consists of physics-related academic societies from all over the world. The Physical Society of Japan (JPS) and the Japan Society of Applied Physics (JSAP) are the member societies from Japan. “CCP” stands for “Conference of Computational Physics” and is organized annually by the Commission 20 (Computational Physics) of IUPAP. This one was the 24th conference.

The number of total attendants was 404, from 37 countries. We were very happy to welcome people from far distant countries such as Brazil, South Africa, and Algeria. This diversity indicated by the number of countries of the attendants means that computational physics has grown up as a basic infrastructure for higher education in not only developed countries but also developing countries. This fact enforces IUPAP Commission 20’s most intense commitment to systematic education of computational physics, even if what discipline we regard as the computational physics is still under a lot of discussion in the world community.
The start of my commitment on this CCP was triggered by phone calls from a friend in our ministry MEXT (http://www.mext.go.jp/english/). He mentioned to me that it was decided that in 2012 the IUPAP-CCP would take place in Asia-Oceania and he said that Japan had never hosted the conference so far. He suggested that, since we had almost completed the then world-fastest “supercomputer K”, it would have been a good chance to organize the CCP in Kobe in concomitance with the opening of the K computer for shared use, scheduled for November 2012 (http://www.aics.riken.jp/en/). After several phone calls I could not avoid accepting to become the chairman of the organization of the IUPAP-CCP in Kobe. Then, I told him that if I could organize and make the program as I wished, I would accept the charge of the chairmanship with the condition that there be no interference by our ministry except for support. Soon after, we decided the venue: beside the K computer site located in artificial island “Portopia” in Kobe.

In order to prepare the conference, I attended CCP2009 at Kaoshung in Taiwan and CCP2010 at Trondheim, Norway. Honestly speaking I was not so excited by parallel sessions, although the plenary sessions, of course, were very interesting because we could listen to many topics from all fields of physics. In fact, the parallel sessions programmed with the names of research fields are a kind of duplication of the topics we listen to in other conferences related to our field. While I had been a council member of the Physical Society of Japan (2003 - 2006), I had insisted on the reform of the structure of the annual JPS assembly meeting, namely moving from the classification based on physics fields used for a long time to one that included a mixture of fields in order to make new interdisciplinary sessions. When I formally submitted this proposal as the chair of the reform committee after a lot of discussion to the council meeting, strong
negative voices had made all the others quiet and finally it was not approved. I have, therefore, decided to carry on this idea in this IUPAP-CCP conference in Kobe.

The idea is based on two new methods:

(1) Extending CCP from computational physics to computational science in general and attracting scientists from the theory and applications.

(2) Organizing parallel sessions according to numerical methods and techniques instead of research fields.

Computational science is the academic discipline spun by the warp called area of research and the woof called the calculation technique. This time, I attempted to organize the sessions following of the woof, from the foundations to applications. I had been wanting to organize a conference in such a style for a long time. However, soon after it became clear that this requires a lot of serious work. I cannot make even the program unless I borrow the knowledge of many researchers of computational science, from elementary particles to industrial applications.

I asked the help of many friends to organize the "Japanese Advisory Committee (JAC)", made of about 100 persons, centering on the Kansai area of Japan. And I asked the JAC to nominate about 40 specialists for the "International Advisory Committee (IAC)" comprised of a wide range of fields. Then, the Program Committee became consisting of a total of about 200 persons, including 22 from the “Local Organizing Committee (LOC)”. Around January 2012, we obtained from the Program Committee recommendations for the keynote speakers and the invited speakers. We composed the program and came to the opening of the home page on April 1.

Figure 2. A snapshot of the audience in a plenary session. There were two screens.
I accepted the chairmanship, but in my Institute most professors are experimentalists and the faculty working in computational science are only four. I could not organize the conference without a bigger group. In parallel I have tried to obtain the joint sponsorship of Osaka University, Kyoto University, Kobe University, University of Hyogo, and AICS (Advanced Institute for Computer Science, Riken). Then, I asked each of my acquaintances from Osaka University, Kobe University, University of Hyogo, and AICS, the last three near to the venue, to name five computational scientists each as members of the Local Organizing Committee (LOC). This functioned very well and the conference greatly rose as the result. I am glad to have had 22 friends of computational science in Kansai throughout the organization and execution of this IUPAP-CCP2012. Through the success of the conference management, we also talked about the establishment of a "Kansai Computer Science Consortium" with the members of the present LOC.

The strategy determined by the LOC was that we would not offer any financial support for traveling expenses or hotel expenses. We had to apply for funds and limit expenses. The LOC tried to increase the number of participants by organizing an attractive conference. AICS took charge of the reception, guided tour of the K computer, and banquet. University of Hyogo took charge of the conference rooms, Internet connection, and signboards. Kobe University took charge of poster session site and booths for display. Osaka University took charge of general affairs and, in part, of banquet. Everything was decided at LOC meetings held routinely at Kobe University, University of Hyogo, and AICS, and everybody prepared devotedly. We started the bimonthly LOC meetings in December 2011.

Figure 1 is the memorial picture taken on the second day of CCP2012. Figure 2 is a snapshot of a plenary session. Figure 3 shows the opening of the banquet, the so-called “Kagami-wari”, a typical Japanese ceremony involving the breaking of the wooden plate of a big “sake” barrel to show the mirror surface of the 18 liters of sake. Figure 4 is a snapshot of the guided tour to the K computer near the venue.
The conference consisted of 12 plenary talks, about 50 invited talks, seven parallel sessions, and three sessions of poster viewing. Although five parallel sessions were considered at the beginning, since there were many requests for oral presentations, we decided to increase the number of sessions to seven. The sessions that had more contributions were those on quantum Monte Carlo Methods, finite difference volume element methods, molecular dynamics, Monte Carlo methods, large-scale computing, density functional methods, particle methods, visualization, and community-driven Codes.

Figure 4. Banquet was held Tuesday night at “Kacho-en” near the venue. It is Japanese custom to break the wooden plug of the 18 liter Japanese sake bottle with wooden hammers. This is the start of the banquet.
In the case of the Monte Carlo session, for example, we composed the program so that in the same session topics from lattice quantum color dynamics of elementary particle physics to polymer structure analysis of the worn-out tire (which is an industrial application) were presented and discussed inter-disciplinarily. If presenters gave their talks as in front of their usual specialized audience, it could have been regarded as "It's all Greek to me" by participants; namely, nonsense. Therefore, I asked five golden rules to all the presenters including the plenary speakers. They are as follows.

1. Presenters are invited to give a talk, assuming that the background of participants in a session is of the level of a university undergraduate student and without using technical terminology.

2. Presenters are invited to show all basic equations which one uses in solving problems on computers.

3. Presenters are required to explain why a certain numerical method is necessary, how one applied it, and where is the unique and challenging point.

4. Presenters are invited to show intelligibly the scientific results obtained in the simulation.

5. Presenters are invited to explain what kind of original results will be expected, if the present numerical method is improved and at what points.

I expected that joint research between different fields would start inter-disciplinarily and internationally through this conference. Therefore, I have requested all presenters to follow such golden rules in advance. During the conference, I was glad, seeing the spectacle of researchers of different fields arguing in front of a white board till late at night. Since one of those persons is a friend of mine, I heard his comments about the discussion. He said that they are still having email exchanges. He said that the
interlocutor, from Germany, is an excellent person and that he discovered through her that a development he was researching had already been accomplished. He was surprised and admired her capability very much.

At this conference, we performed another new attempt. It was a debate on computational science and citizens. The aim of the discussion was how to let the taxpayers understand the value and importance of the computational science. We must be accountable to the citizens. Indeed the public political evaluation (called “shiwake”) of the funding for the K supercomputer became very popular in the Japanese news. The time scheduled for the debate was only one hour and a half. In the debate, a science journalist, representing citizens, pointed out four subjects for discussion at the conclusion of her plenary talk of 30 minutes. Subsequently, I coordinated free discussion among all participants for one hour.

I asked Ms. Atsuko Tsuji, a leading writer of the Asahi Shimbun, to give the plenary talk on behalf of the Japanese mass media and finally persuaded her. She gave a really interesting talk, and you can read her speech in these proceedings. At her conclusion she showed the four subjects for the subsequent free discussion:

1. Computational science to address humankind's problems.
2. Ideal style of supercomputer development.
3. How to inform society.
4. How to foster human resources for computational science.

I took over as chairman of the discussion for one hour. I was anxious about keeping the discussion lively. However, worries ended up being groundless apprehensions. Remarks from the audience continued uninterruptedly. The utterances came in rapid succession with English accents from Britain, India, the U.S., Germany, France, and various other countries. It turned out that the scheduled time was too short. I could not coordinate the discussion for a longer time. The most important discussion was about "whether computational science is the third way to research science after theoretical and experimental ones". The conclusion was that computer science is not the third science. I was very much surprised at this conclusion. The record of this discussion is also in the proceedings and I hope the readers think again seriously about such conclusions. I felt lonesome, since there was only one comment by a Japanese participant (to discussion point 2).

The number of papers presented at the conference exceeded 300. There were five participants from South Africa. UNESCO once founded the theoretical physics center (ICTP) in Trieste, Italy, as a science base for the third world. When young excellent people educated at the ICTP return to their countries, such as Africa, they find lack of infrastructures for research. But today's personal computers are 1000 times faster than the supercomputers of my doctorate days. Therefore, since high-level science can be studied with a personal computer even in Africa, computer science is spreading. The five persons from South Africa were scientists who are promoting excellent teaching for young men of all Africa.
The subsequent conference in 2013 will be held in Moscow at the end of August (http://ccp2013.ac.ru). Our two new attempts were welcomed very much by many participants. Many participants evaluated them positively. Furthermore, many opinions like "I should make this system the standard form of IUPAP-CCP from now on" were offered by the IUPAP-C20 commission members. If we have some new idea, we should implement them with resolution.

Figure 6. The final LOC meeting at a Japanese style restaurant near San-no-miya station, the biggest station near the venue. We thanked each other for the success of the conference organization obtained through the sharing of all powers and efforts.

Finally, I am thankful to Takahiro Hayashi, Director of the Office for the Promotion of Computing Science of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). I also thank Dr. T. Takada and ex-Director Mr. Inoue for providing me such a good chance to organize the conference. I am thankful to Dr. K. Hirao, the director of AICS, who kindly helped us to arrange the “K” supercomputer guided tour for many participants over the capacity of the normal tour. Moreover, I appreciate the support of the Japan Society of Promotion of Science, the Expo 70 Memorial Foundation, the Kobe International Tourist Association, and several other associations. And I am thankful to all individuals in the committees described above. Especially Prof. Luca Baiotti who played an active role in the general affairs, programing, proceedings etc., Ms. Yuko Sakamoto for her assistance as secretary, Chairman of the LOC Dr. T. Nakajima (Riken, AICS), and Vice-Chairs Prof. H. Usui (Kobe University) and Prof. R. Numata (University of Hyogo) for their excellent partnership with us to really run the conference successfully.