

COE-INES Business Trip Report

Conference Name: The 13th International Conference on Nuclear Engineering (ICONE13)

Person Attending: 原子核工学専攻博士後期過程 2 年 Sheng Wang

Dates: May 14-21, 2005

Venue: Beijing International Convention Center (BICC), Beijing, China

Report on ICONE13

The 13th International Conference on Nuclear Engineering (ICONE13) was held at Beijing from May 16 to May 20. The Chinese Nuclear Society, The American Society of Mechanical Engineers (ASME) and Japanese Society of Mechanical Engineers (JSME) jointly organized this conference. There were 16 technical tracks and 112 technical sessions, which included almost all the research topics in the field of nuclear reactor. About one thousand famous scientists and experts in nuclear field, experienced engineers, government officials, managers in nuclear companies, and graduate students attended this conference and presented their papers in this conference. **Figure 1** shows the opening ceremony of ICONE13.

The CFD (Computational Fluid Dynamics) seminar was held on May 16, and an overview of solutions of fluid flows of interest in nuclear industrial applications using CFD was presented in this seminar. The goal is to provide the basis and results for selection of several CFD applications for certain flow problems. Several famous scientists and experts including Prof. Yassin Hassan (Texas A&M University, U.S.A) and Prof. H. Ninokata (Tokyo Tech, Japan). They were the track leader and co-leader. They also gave good lectures to conference attendees. Those lectures deeply widened my field of vision.



Fig.1 The 13th International Conference on Nuclear Engineering

The opening ceremony was held in the morning of May 17. The vice prime minister talked the congratulation remarks and the president of CNNC described the perspective of Chinese nuclear industry in the opening ceremony. A councilor of Japan, the industry minister of France, and the Governor of Idaho, USA also gave speeches. From the different point, they talked about the development and cooperation of nuclear industry in the world. After the opening ceremony, there were three plenary sessions.

The technical tracks which included almost all the research topics in nuclear reactor field started in the following two days. I think as a researcher and future engineer in nuclear field, it is very important to see fresh ideas and developing direction about the nuclear reactor. So I tried my best to listen to more presentations on the nuclear safety, thermal hydraulics in nuclear reactor, and

so on. After the presentation, I gave some questions to presenters and discussed with them. During the conference, I made use of the dining time to talk with some famous scientists about the public opinion and public acceptance on the nuclear reactor and the problem of international cooperation on nuclear field.

My paper belongs to Technical 12-7 Thermal Hydraulics (13) and I presented it in May 19. The title is “Numerical Simulation of 3D Flow in Turbomolecular Pump by Direct Simulation Monte Carlo Method”. I discussed with one professor and two students on my paper. The professor asked me two questions. One is why I chose the diffusion reflection model, other than the specular reflection model to calculate the collision between the molecule and surface. I explained that as my experience, for the rotating surfaces, the diffuse reflections model matches with the real surface situation compared with the specular reflection model. But the professor still recommended me to adopt the specular reflection mode to calculate it and compare the results with the diffusion reflection. I said I would try it. Another question is whether I can apply the one-stage calculation results to the whole stages. I told him I can employ one-stage to the full TMP easily according to the Kruger’s theory. Finally he said he was satisfied with my answer. The two students asked me how to decide the number of simulated molecule and the size of cell. I answered them within my experience and knowledge. Fortunately, my paper was selected as an excellent student paper during the ICONE13.

In May 20, the conference committee organized the technical visit to China Institute of Atomic Engineering (CIAE) and Tsinghua University.



Fig. 2 Author’s presentation in ICONE13



Fig.3 Excellent Student Paper of ICONE13

Above all, I got great gain for improving my technical background and widened my vision after attending ICONE13. So I really appreciate having a good opportunity to join the conference from COE-INES. This kind of support is very important for cultivating the future excellent engineer.