COE-INES business trip report

期日：　　平成 17 年 6 月 12 日　～　6 月 19 日
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出張先：　モントレー、米国

Conference attended: The 15th IEEE International Pulsed Power Conference
Venue: Monterey Convention Center in Monterey, USA

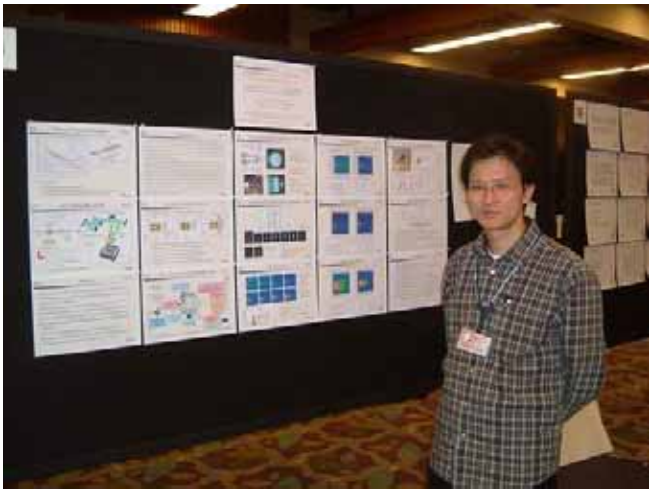
Report on PPC2005

The international IEEE Pulsed Power Conference 2005 (PPC2005) have been held every two years since 1975 and provided a unique opportunity for the worldwide community of engineers and scientists of the pulse power industry, research organizations and academic to meet, present and discuss their work on pulse power research and development. PPC2005 was designed to be both an opportunity to hear of the very latest and most exciting developments in pulse power technology from leaders in their fields and to provide many opportunities to meet personally with other delegates to discuss in detail work in areas of shared interest.

Monterey Convention Center

The PPC2005, was held in Monterey convention center in Monterey (USA) during June 12th ~ 19th, 2005. The topics of conference were switch, accelerator, pinches, vacuum insulators, high intensity discharge sources, generation and networks. Major issue of this conference is switch and pulse power applications. I had the chance to present the paper entitled “Development of gas jet type Z-pinch EUV light source for lithography”. EUV lithography is regarded as the potential candidate for technology under 50 nm node optical lithography after 2007. There are many issues for realizing EUV lithography such as developing optical components and photoresist and one of the most important challenging tasks is to develop the EUV light source. I presented this paper at the Industry application of pulse power system. At the conference, I could share their knowledge and experience and see the works of other groups.

I discussed with many researches and professors and some of them asked me questions about flow of gas jet, why EUV, interference of He gas curtain, status of Tokyo Tech system and future plans. Also they gave me valuable comments and suggestions such as visualization of gas flow, heat treatment, material selection, co-work with other research groups, etc.



Poster presentation

The conference aimed a convivial meeting for intellectual discussion between the attendees. They paid much attention to prepare the poster because they attached great importance to the free discussion among the attendees. The photo (left) shows author's presentation in the session.

It was very important to see new ideas and research direction about the pulse power field as the student and future research in pulse power system. I did my best to attend and listen to the presentations on switch and system in pulse power and its application. Beside of the oral and poster presentations, invited talks were presented concerning the future world with pulse power. I paid much attention to those. At this year, Dr. Fred Beach from naval laboratory presented "Present and Future Naval Applications for Pulsed Power". The American Navy is moving to replace many traditional weapon systems (all of which are chemical and thermodynamic in nature) with directed energy and electric weapons. Some of the electromechanical devices, such as the Electromagnetic Aircraft Launch System and all of the electric weapons, such as Electromagnetic Railgun and High Energy Laser, require some form of pulsed power and or pulse forming network. Also other invited talks showed the Food treatment and Medical application, etc. Some researchers presented the new method in pulse forming, pulse generation, switch and new application field. A growth rate of mushroom shocked with high voltage pulse power was presented by Kumamoto Univ.

Finally, I obtained great technical and theoretical gain and also I could enlarge my vision and thinking in my research field after the participation of PPC2005. So I really express my appreciation to COE-INES. This kind of support encourages the students and researchers in their research field.