大阪大学工業会海外交流助成金「渡航報告」

〔学生の部〕

Report of International Conference

Graduate School of Engineering　Division of Global Architecture
Doctor Course (D2)　Jiangchao Wang

Name of Conference: International Society of Offshore and Polar Engineering 2011
Meeting Location: Maui, United States of America
Date: 2011/6/20-2011/6/24

Thank you for the financial support by Osaka University Engineering Society, I attended the international conference of ISOPE-2011 at the Maui island of USA last month.

ISOPE, which is a tax-exempt, non-profit scientific and educational organization, was granted on Sep 15, 1989. The corresponding annual international conference has been the world's largest technical conference concentrated on the significance of the results or the originality about the ocean engineering and offshore structures and its objective is to provide a timely international forum for researchers and engineers.

Fortunately, our paper entitled **Investigation of Buckling Deformation of Thin Plate Welded Structures** has been granted the Best Student Paper Award because of novel research method. For this honor, I must sincerely thank my supervisor, Prof Murakawa Hidekazu of Osaka University who always give me a lot of help and useful suggestions. During this conference, there are many interesting research topics and wonderful presentations by participants, I also introduced our research result about the mechanism, prediction and control of buckling type deformation for assembling panel plates, it is happy to obtain several comments and deeply discuss with other excellent researchers.

Finally, this conference is an ideal opportunity for me to introduce my research result and to receive valuable suggestions and information for my study for the doctorial course at Osaka University.

ISOPE Conference Hall

Best Student Paper Award during Banquet

海外交流助成金「渡航報告」は、提出されたままを掲載しております。

〔学生の部〕

Title of Report: 12th Conference on the Science and Application of Nanotubes
Ahmadreza Fallahgilvaei
July 22, 2011

NT11 as the twelfth conference on the science and application of nanotubes was held at the University of Cambridge, England on 10-16 July 2011. More than 600 scientists from around the world participated in this conference and shared their new findings and ideas about nanotubes and graphene. The conference program was composed of

- Synthesis and mechanism,
- Structure and processing,
- Structure and characterization,
- Devices and physics,
- Chemistry and biology,
- Processing, devices and biology,
- Application and devices,
- Structure and composites,
- Nanotube related structures and applications

Around 40 presentations were made out of more than 600 abstracts received by the conference committee. Eight poster sessions was considered during the conference and each poster session time was around one hour. Poster session provided valuable time for exchanging information with other researchers and to talk in more detail about their approach in research. Presence of researchers from England, Japan, Korea, China and USA was dominant.

There were many reports about the application of nanotubes as sensors, transistors and emitters. Sensors were mainly focused on gas sensing and some mechanical sensors. Finding suitable ways for manufacturing thin film flexible transistor also seemed interesting specially to people who are active in industry. A lot of progress has been obtained in dispersing CNTs based on their properties. Presentations showed different approaches for separating CNT based on their metallic or semiconducting nature, or based on chirality of nanotubes. Specially there has been a very good progress in this field in Japan pioneered by AIST scientists. It had also been shown that in the near future it is possible to synthesize nanotubes with narrow and special chirality. Many efforts have been made to use CNT in functionalized or composite form instead of using pristine CNTs. It seems these types of treatments provide more functionality, ease of handling and manufacturing, and result in more acceptable outputs. For example almost all CNT based sensors lay in these groups. Understanding the CNT growth mechanism remains as a challenge and some reports tried to address this topic. Graphene as a new carbon material was at the center of attention in many posters and presentations.

Professor Inoue and co-workers from Shizuoka University exhibited their success in producing well-spinnable brush-like CNTs using iron chloride as catalyst. They claimed that almost all samples made by this process are spinnable and their main challenge is to reduce the diameter of CNTs made by this process. They said that the diameter of CNTs was originally around 40 nm but recently the average diameter of CNTs has been reduced to 20 nm. Researchers from University of Texas at Dallas showed a new application of CNT yarns and sheets as a filter for capturing small particle of different materials. In this application, they used CNT sheets as a web and host for particles and making layered and functional materials by different combinations and properties. This research has been published in Science magazine titled “Biscrolling Nanotube Sheets and Functional Guests into Yarns”. My presentation was well welcomed by researchers and they expressed their interest for possible joint research.

NT12 is going to be held in Brisbane, Austrailia on 25-28 June 2012.

〔学生の部〕

渡航報告書

大阪大学大学院工学研究科
応用化学専攻
博士後期課程１年　西村　章

2011 年 7 月 23 日から 28 日までの 6 日間にわたって、中国・上海にて行われた、The 16th IUPAC International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS 16)に参加し、研究成果を発表した。この OMCOS は有機金属や遷移金属触媒を用いた反応開発を行っている研究者が集まる会議であり、2 年に 1 回開催されている。今回の OMCOS16 は、参加者約 1000 名、ポスター発表者 500 名という非常に大きな国際学会であった。私は、「Cyclohexene Derivatives by Nickel-Catalyzed [2 + 2 + 2] Cycloaddition of Enones and Alkynes」という題目で、ニッケル触媒を用いた分子変換に関するポスター発表を行った。発表には多くの方が足を運んでくださり、活発な議論をすることができた。半数は中国の方であったが、母語は違えどこと化学に関しては英語での議論を通してお互いに理解することができた。この経験から、コミュニケーションツールとして英語は非常に重要であることを再認識するとともに、まだまだ勉強をしないといけないと感じた。講演では、ノーベル賞受賞者である根岸英一先生を始め、多くの著名な先生方のお話を拝聴することができた。しかしながら、途中で体調を崩してしまい一番楽しみにしていた講演を集中して聴けなかったことが残念であった。

出発前の天気予報では、現地は雨続きであったのに対し、現地へ行ってみるとほとんど全日晴れていたので、少々暑かったが観光にはもってこいの天気であった。空き時間を利用して観光したのだが、中国庭園である豫園や上海テレビタワー、水族館など様々な場所を巡ることができた。

写真１：豫園の概観

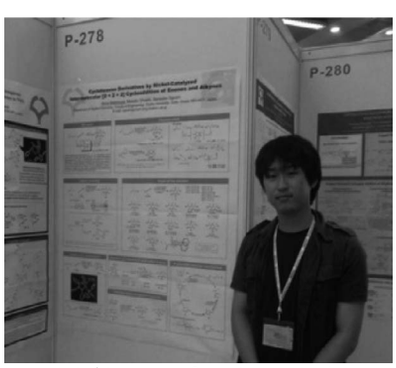


写真２：ポスター発表

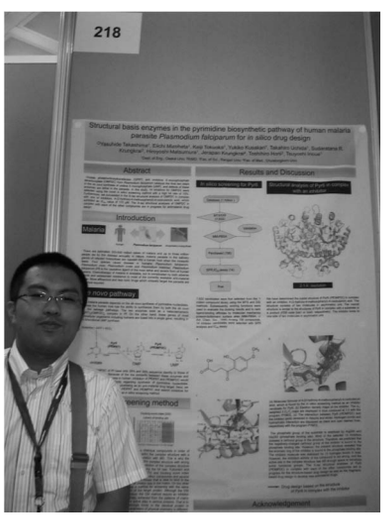
最後に、今回の海外渡航・国際会議参加にあたり海外交流助成金を援助して下さった大阪大学工業会に、この場を借りて厚く御礼申し上げます。

海外渡航報告書

大阪大学大学院工学研究科
応用化学専攻　井上豪研究室
博士後期課程 3 年　髙島康秀

私は 2011 年 8 月 22 日～29 日の期間に Twenty-Second Congress and General Assembly of the International Union of Crystallography (IUCr 2011) に参加した。IUCr 2011 は主に世界の結晶学者が集う国際学会で、3 年に 1 度、世界各地で開催される。前回の 2008 年はここ大阪で開催された。今回はスペイン・マドリッドの郊外で開催され、広大な土地にその会場はあった。

私は蛋白質の X 線結晶構造解析が専門分野で、23-24 日の 2 日間ポスター発表を行った。タイトルは『The *in silico* screening and structure analysis of inhibitor complex of *Plasmodium falciparum* OMP Decarboxylase』で、世界 3 大感染症のひとつであるマラリアという病気の新薬開発が目標である。国際学会は初めてで、大変緊張したが、発表中は世界中のマラリア研究者に出会い、私の知らなかった研究に触れることができた。未熟な英語ではあったが、私自身のアピールにも挑戦した。さらに、学会中のオープニングセレモニーやコングレスディナーに参加し、異分野の学生と交流する機会が持てた。日本人の友人も出来、私の貴重な財産になった。



会場を離れて、夕食に出かけると、地下鉄で突然車両に乗り込んできて、演奏する者に何度か出会った。日本ではありえないことなので本当に驚いたが、マドリッドでは普通のことらしい。スペイン料理は大変おいしく、私にぴったりだった。また、訪れたい国のひとつになった。

（上）ポスター発表（下）学会会場

最後になりましたが、IUCr の参加にあたり、海外交流助成金を援助していただきました大阪大学工業会に深く御礼申し上げます。