

Project No.:18004 Core Institution in Japan: Graduate School of Engineering, Kyoto University

**JSPS Core-to-Core Program -Strategic Research Networks-
FY2009 Research Report**

Project No.	18004
Research Theme	Advanced Particle Handling Science
Duration of Project	2008/4/1 – 2011/3/31 (36 months)
Core Institution in Japan	Graduate School of Engineering, Kyoto University

Implementing Organizations

Country	Japan
Core Institution	Graduate School of Engineering, Kyoto University
Co-Chair (name and title)	Ko Higashitani, Specially Assigned Professor
Number of Cooperating Institutions	9
Cooperating Institutions	Innovative Collaboration Center, Kyoto University Graduate School of Pharmaceutical Sciences, Kyoto University Institute for Frontier Medical Science, Kyoto University Institute for Integrated Cell-Material Science, Kyoto University Doshisha University Faculty of Science and Engineering Doshisha University Graduate School of Engineering Okayama University University of Hyogo Kobe Gakuin University

Country	United States of America
Core Institution	Particle Engineering Research Center, University of Florida
Co-Chair (name and title)	Brij Moudgil, Director, Professor
Number of Cooperating Institutions	0
Cooperating Institutions	
Matching Fund	The Mission activities of the Center including Research(& research collaboration), Education and Technology

Country	United Kingdom
Core Institution	Institute of Particle Science and Engineering, University of Leeds
Co-Chair (name and title)	Simon Biggs, Head of the institute, Professor
Number of Cooperating Institutions	0
Cooperating Institutions	
Matching Fund	EPSRC/EU/British Council & University of Leeds

Country	Australia
Core Institution	Particulate Fluids Processing Centre, The University of Melbourne
Co-Chair (name and title)	Geoff Stevens, Director, Professor
Number of Cooperating Institutions	0
Cooperating Institutions	
Matching Fund	Australian Mineral Science Research Fund

Country	Germany
Core Institution	Institute of Particle Technology, The Friedrich-Alexander-University of Erlangen-Nuremberg
Co-Chair (name and title)	Wolfgang Peukert, Head of the institute, Professor
Number of Cooperating Institutions	1
Cooperating Institutions	Max Planck Institute (Mainz)
Matching Fund	Cluster of Excellence

Country	Switzerland
Core Institution	Particle Technology Laboratory Swiss Federal Institute of Technology, Zurich
Co-Chair (name and title)	Sotiris E. Pratsinis, Director, Professor
Number of Cooperating Institutions	0
Cooperating Institutions	
Matching Fund	Exploratory Research on Advanced Materials and Processes

Result of Program Implementation

In FY2009, 14 international research collaborations, 8 domestic research collaborations, 10 seminars, and 67 researcher exchanges were carried out. The collaboration projects were carried out in such a way that the Japanese researchers visited their collaborating institutions, exchanged their scientific ideas and performed the experiments with the collaborators to obtain the results of common interest.

In total 14 researchers of not only cooperating institutions, but also of other institutions abroad visited Kyoto university and cooperating institutions. 10 seminars were held with these visiting researchers, in which about 360 Japanese members and students in total participated in the exchange of up-to-date information. A special seminar "Young Researchers Meeting" was held in York City and the University of Leeds in England this year.

We sent 49 of our members to the six partner institutions (4 to United States of America, 13 to United Kingdom, 11 to Australia, 17 to Germany and 8 to Switzerland). Strong networks were established between individuals via the scientific meetings held at the partner institutions.

It is worth noting that young Japanese researchers took advantage of this program very actively and effectively to make their own strong international networks, which will result in world-wide research collaborations of the next generation in the field of particle science and technology.

Achievements in FY2009 (Self Review)

The following achievements were made this year through the activities described above.

- (1) The world-wide networks for "Advanced Particle Handling Science" between Kyoto University, Japanese cooperating institutions and five foreign partner universities and cooperating institutions were strengthened. That is, the strong research network and mutual confidence between 6 institutes in 5 countries was established through the "face-to-face" contacts between researchers.
- (2) A huge amount of information on Advanced Particle Handling Science was accumulated among Japanese researchers.
- (3) 22 international and domestic collaboration research projects were successfully carried out between Japanese and overseas members.
- (4) Networks between the young researchers of the next generation were further strengthened through the 35th seminar, "Young Researchers' Meeting 2009", which was held in York City and the University of Leeds in England.
- (5) Young Japanese researchers were tremendously trained how to debate, discuss and finally negotiate with researchers of different culture.
- (6) Individual intimate connections between researchers were strengthened.
- (7) Out of 168 papers which were written and published by our members this year, 11 collaboration papers and 35 papers were carried out with the support of this program.

Future Plan (Measures toward Achieving Research Objectives)

The international networks among members have been strengthened incredibly, because a tremendous number of mutual contacts have been carried out among the members of Japanese and cooperating institutions during the last 4 years of this program. Most of our members now know the researchers of our cooperating institutions in great detail, and have also noticed the importance of the collaborations that might bring "a great break-through" of various problems. Hence, the collaboration works among the members proceeded greatly not only internationally but also domestically. This year 14 international collaborations and 8 domestic collaborations are carrying on, and additional 7 international collaborations and 4 domestic collaborations are proposed for 2010. These mutual active contacts and networks among members will result in the development and establishment of "the Advanced Particle Handling Science for the Next Generation".