

My memorable two years in IMS

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It is a great privilege for me to share my wonderful experience of my two years stay at IMS, Okazaki. I started working at IMS in Prof. Tsukuda's Laboratory as a visiting researcher from the middle of October 2005, soon after submitting my doctoral thesis in India. I have been continuing as an IMS postdoctoral fellow from April 2006 till date. I completed my doctoral studies from National Chemical Laboratory, Pune, India. My doctoral thesis was devoted to the electrochemical studies of metal nanoclusters and their applications. In IMS my main research activities were to establish electrochemical studies of sub-nanometer sized gold nanoclusters. These are a novel class of model materials to understand the size-dependent evolution of electronic properties in nanoscale size-regime. I have also been involved in several other ongoing exciting research programs in Prof. Tsukuda's laboratory, such as catalysis by gold clusters, precision synthesis and mass-spectrometric analysis of magic-numbered alkanethiolate-protected gold nanoclusters. These two years of postdoctoral work in IMS has given me a fabulous opportunity to learn new science and to handle several new

instruments, thereby enabling me to broaden my research activities.

IMS has an excellent scientific environment due to the presence of plenty of internationally reputed scientific groups. This, in combination with a variety of modern instrumental facilities, excellent academic library and supported by very helpful and efficient administrative staffs makes it a scientific institute par-excellence. The seminars and symposiums, organized by IMS on a regular basis, give an excellent opportunity to interact with several international research groups and broaden one's exposure. The online library facility of IMS is very helpful for researchers to keep an easy track of the progress in their related fields. Beside the scientific aspect, in IMS there are plenty of congenial occasions I received to meet, discuss and share my views with several of members of IMS. Finally, I must convey my appreciation for the excellent accommodation facilities that IMS provides for foreign researchers.

My visit to IMS is very special not only for my research, but also for my daughter. She came here when she was 5 months old and has now started speaking in Japanese. I would like to also take this opportunity to thank all of the staffs and management committee members of Sakura day care center for their extreme care and hospitality of our daughter. I can never forget the Okazaki town



for its natural scenic beauty. We have enjoyed the sakura blossoms, fireworks, red maple leaves or mild snowing and these will be etched in our memory for a long time. We, as a family enjoyed an unforgettable and memorable Japanese life.

I am deeply indebted to Prof. Tsukuda for providing me a great chance to work in his group at IMS. I could discuss with him any problem, about science or life and every respect these discussions were very crucial to make important decisions. I would like to offer my sincere admiration to him for all his kind help and extreme hospitality. I hope that he is pleased with my work and wish to maintain a long term future scientific collaboration. I would like to thank all my lab members for their kindness and helping nature. I learnt the operation of several instruments and always enjoyed the lively scientific and personal discussions. I would also like to thank to all the members of the Department of Materials Molecular Science and Research Center for Molecular Scale Nanoscience for all of their kind helps and discussions. I wish all the members of IMS every success in both their scientific and personal endeavors.

Wonderful research and experience in Okazaki

Hojun IM

I am a research professor at Sungkyunkwan University (SKKU), Korea, and am now here as a visiting researcher since Oct. 2006. In fact, I came here four years ago as a PhD student of SOKENDAI at Kimura group of UVSOR-II. Therefore, I would like to start the writing remembering the period of SOKENDAI. I have studied the strongly correlated electrons systems, especially, heavy-fermion systems, since the master's course. When I was a master student at Kwon group of SKKU, I had made new rare-earth intermetallic compounds and had studied their physical properties by thermodynamic experiments. During studying them, I had attracted a powerful technique of spectroscopy to observe electronic structures. This is why I had come here as a PhD student. As a result, my choice was right. When I first came here on Oct. 2003, it was very impressive that both laboratory and synchrotron experiments are carried out at the same place, IMS. In addition, it was lucky for me that there was a good supervisor, Prof. Shin-ichi Kimura. These provided a good opportunity of the advanced research. Actually, I have challenged a new subject, "understanding of quantum criticality in heavy-fermion systems by photoemission spectroscopy", and obtained good results; for the

first time, it is directly observed that the coherent peaks of Ce 4f electron in heavy-fermion systems disperse near the Fermi level in good agreement with the periodic Anderson model.

This encouraged me to further study this topic after PhD degree and to remain here as a visiting researcher. For this point, I really thank Prof. Kimura, who invited me as a visiting researcher, and Prof. Kwon, who is present boss and permitted my research in IMS. Very recently, I have obtained decisive results to explain the electronics structure of heavy fermions by using the angle-resolved photoemission spectroscopy: Strongly correlated Ce 4f electrons have periodicity and moment dependent at Fermi level, when the ground state varies from magnetic to non-magnetic regime via a quantum critical point. This is very important information to understand quantum criticality in heavy-fermion systems.

Beside my field, I would like to say about a whole impression of IMS. In a word, IMS is a well-organized research complex center. Harmony between experiment and theory deserves admiration. In addition, a synergy of collaboration between top-level researchers in similar fields is striking. A system for collaboration with foreign researchers is also well-developed such as visiting researcher, visiting professor, and exchanging students. It should be emphasized that IMS plays an important role in the educational



field as well as research area. As another good research environment, I would like to mention the accommodation provided by IMS. I live in Mishima Lodge together with my family. Lodge is very close to UVSOR-II and is comfortable place in both living and research.

The city of Okazaki seems to also exist for research. The quiet and niceness in the city enable me to think a new research idea profoundly. In fact, I am already used to the silence of Okazaki. When I came back to Seoul, where I lived in Korea, I felt very complicated. I often think that I can not live in Seoul any more because of complexity.

Now, IMS and Okazaki is very familiar with me due to not-short living. Everything becomes an everyday life. In spite of that, I have deeply impressed the excellent research environments and the passion of researchers who constantly pursue top-level research as mentioned above.

Finally, I would like to say about the people in IMS. I am very happy for the fact that I met good colleagues and friends at UVSOR-II. They welcomed me warmly as one of members, and I could forget the difficulty of life in a foreign country.

IMS is very special for me because IMS is not simple institute I visit but alma mater. I will keep it carefully in my life.