2011 Reverse NanoJapan Program at Rice University

In response to the Japanese earthquake, tsunami, and nuclear power crisis, we decided to not sponsor the summer education program in Japan. The decision was based on several factors affecting conditions in Japan during the summer of 2011 including uncertainty over the nuclear situation and the impact that energy conversation efforts might have on our research host labs in Japan. We designed an alternative summer research program, "Reverse NanoJapan," to take place at Rice University and invited our Japanese colleagues at universities affected by the recent events to send their students to Houston to continue their work. A total of 14 American students and 25 Japanese students were selected to participate in the program. Teams of U.S. and Japanese students were assigned to host research labs at Rice University and worked collaboratively on a research project. Research projects were concerned with the growth, fabrication, and characterization of nanostructures and nanomaterials, especially carbon-based nanomaterials such as graphene and carbon nanotubes. The program showed that our team can work quickly together to develop an innovative and highly regarded alternative program in the wake of the 3/11 disaster in Japan. Rice University faculty and visiting TeraNano PIRE research collaborators also presented a weekly seminar series on Terahertz Dynamics in Nanostrcutures to introduce both U.S. and Japanese participants to this emerging research area.

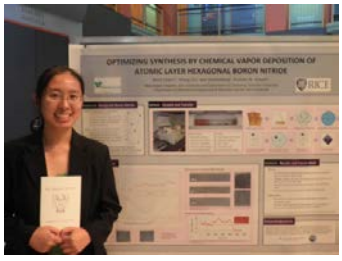
Intensive Japanese Language Course: In order to introduce Japanese language and culture, the U.S. NanoJapan undergraduates participated in a two-week on-campus intensive Japanese language class (May 30 – June 10). Students completed 3 hours of Japanese language instruction per day, a similar structure to the Japanese language classes offered to students during the NanoJapan orientation program in Tokyo. The beginning class was taught by Chihiro Aoki, an instructor hired on a contract basis from SUNY Buffalo. Prof. Mitsuaki Shimojo taught the intermediate class. At the end of the two-week program, Shimojo taught weekly language instruction with all of the students via an online distance learning system developed by Rice University, Big Blue Button. The system allowed for live interactive video/audio webcast and screen sharing between instructor and students.

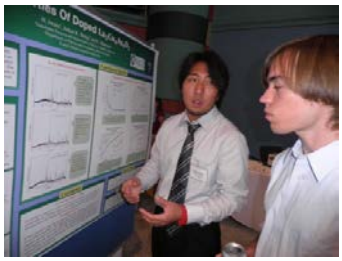
NanoJapan ESL Course: During the first two weeks of the NanoJapan – U.S. Program, the Japanese participants completed an ESL Conversation Course taught by Aoki, who received her MS in TESOL from SUNY Buffalo. This course enhanced the Japanese student's spoken English and their confidence in using English on a daily basis. Over the course of the two-week period the Japanese students completed 30 hours of ESL instruction.

The NanoJapan Program is jointly administered by Rice University and the University of Tulsa and is funded by a NSF Partnerships for International Research and Education grant (OISE- 0968405).

NanoJapan – U.S. Education & Culture Program: We drew from resources in Houston's Japanese community, including those provided by the Consulate General of Japan in Houston. The aim of the culture program was to encourage an active exploration of US and Japanese culture, with specific emphasis on skills required for working as part of cross-cultural research teams. A wide range of cultural activities were also organized for 2011 Reverse NanoJapan participants. Many events were sponsored by the Japanese Consulate of Houston, Showing Japan, and the Rice Office of International Students and Scholars. NanoJapan students also built a Nagashi Somen Machine that Rice University will continue to utilize at campus and university evens sponsored by organizations such as the Japanese Association of Greater Houston or Japan-America Society of Houston.

Housing: The Japanese and U.S. students lived together in the Rice University Graduate Apartments, fostering informal interactions among all program participants. Rice University contributed $25,000 towards the cost of summer housing for the Japanese participants in the NanoJapan program. This provided full funding of housing costs for twelve out of twenty-five of the Japanese students.





***Rice Quantum Institute Summer Research Colloquium*:** The capstone experience of NanoJapan – U.S. was a presentation at the Rice Quantum Institute (RQI) Summer Research Colloquium, which highlights the best of undergraduate and graduate research at Rice University in areas relating to quantum phenomena. Undergraduate participants presented topical research posters and graduate student participants gave oral talks relating to their TeraNano PIRE research. In preparation for participation in this symposium, students practiced their presentation skills and completed poster development workshops with support from the School of Engineering's Professional Communication faculty. This symposium included a wrap-up program for NanoJapan students that addressed integrating the international research experience into their academic and career plans.

Future Opportunities: Though unplanned, the 2011 Reverse NanoJapan experience proved to be a great success. The Rice University community and the Japanese community within Houston came together to support engagement with the best aspects of nanoscience research and inter-cultural education and exchange between U.S. and Japanese researchers. The program was rated very highly by both Japanese and U.S. participants and should funding become available, Rice University would welcome the opportunity to again organize a similar summer research program for visiting Japanese students. For more information on NanoJapan or the TeranNano PIRE research project please see http://nanojapan.rice.edu/ or email terananopire@rice.edu.

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