The scientific methods in the 21st century are becoming much more interdisciplinary. One of the most interesting interdisciplinary subjects is quantum information science (QIS) which has emerged in an attempt to connect the notions of quantum physics and the information theory. For example, entanglement entropies in black-hole theory in physics, topological quantum computation via the braid group in physics and mathematics, Shor’s algorithm for factoring problems in mathematics, and additivity questions on channel-capacities in information theory are all related significantly to the quantum information science.

The 7th Asia-Pacific Conference & Workshop on Quantum Information Science 2013 is an annual Asia-pacific regional meeting on the recent progress of quantum information science. About one hundred scientists from ten countries participated in this event held in main hall of KIAS from December 15 through 18, 2013. This conference, initially having started in Singapore in 2001 as a workshop, now has grown to be one of the biggest international conferences in Asia. The conference was organized by Prof. Jaewan Kim (KIAS) and Dr. Kyung Soo Choi (KIST) under the support of KIST, SK telecom, and KIAS. It hosted 2 keynote speakers, 27 invited and 9 contributed speakers, and 11 posters. Thanks to SK telecom, a nice banquet dinner was provided at Sheraton Grande Walkerhill hotel. The next APCWQIS will be held in Taiwan.

During the first day, 6 sessions were offered including a poster session. After the opening by Prof. JongHae Keum (President of KIAS), Prof. Luming Duan from university of Michigan gave a very impressive keynote talk entitled “Quantum Computation and Simulation: Recent Progress in the Trapped Ion System”. He introduced recent progress in the state-of-the-art quantum information technologies and experiments. The following 12 invited talks presented current theories and experiments on quantum many-body physics, continuous-variable quantum information processing, foundations of quantum theory, topological orders, and so on. The first day ended with a poster session, which included 11 posters and lots of pizza!

The presentation of Dr. Hugues de Reidmatten from
ICFO, which is the largest quantum research group in Europe located in Spain, began the second day with several speakers addressing current quantum optical technologies. In my opinion, Prof. Hishamuddin Zainuddin’s mathematical study on a type of tripartite entanglement and Dr. Sangchul Oh’s talk entitled “Cycloid on a Bloch Sphere” were very impressive. Their talks were well organized and clear from a mathematical point of view. The title of each session clearly explains the nature of APCWQIS: Optical quantum memory, Optical hybrid quantum information processing, Entanglement theory, Coherent spin dynamics, and Open quantum system dynamics. The final important session was the conference banquet held in Mugunghwa hall in Sheraton Walkerhill hotel. In the banquet, next APCWQIS’s were announced to be held in Taiwan (2014) and New Zealand (2015).

The final day of APCWQIS started with another keynote speaker Prof. Akira Furusawa from University of Tokyo, who is now an influential figure in the area of continuous-variable (CV) quantum teleportation based on two-mode squeezed states. The title of his talk was “Time-domain multiplexing for hybrid quantum information processing”. He introduced a new hybrid setup of so-called CV teleporter.

In addition to the keynote and invited talks, there were plenty of chances to look into the passion of young scientists through their contributed talks and posters. In conclusion the Asia-Pacific Conference & Workshop on Quantum Information Science 2013 was successful in the sense of “introducing quantum information science” and of “seeing new quantum technologies”.

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