Promoting Quantum Innovation through the triangle collaboration

Akihisa Tomita

Quantum ICT Forum / Hokkaido University

Biography

Akihisa Tomita received the B.S. and M.S. degrees in physics and the Ph.D. degree in electronics from the University of Tokyo in 1982, 1984 and 1998, respectively. He engaged in the research on photonics from 1984 to 2000 and conducted research on quantum information technology from 1998 to 2010 both in NEC Corporation. He also led the group for quantum information experiments in Quantum Computation and Information Project, ERATO and SORST, JST, from 2000 to 2010. He is a professor at Faculty of Information Science and Technology, Hokkaido University since 2010. His current research covers photonics for quantum information processing and quantum communication.

Abstract

To create a sophisticated society, it is required to establish efficient processing and analysis of large quantities of data collected from various places, decision of the optimum actions, and accomplishment of the order sent from the artificial intelligence. Highly sensitive and highly accurate sensors, high-speed computers, and communications with low latency and guaranteed security are thus necessary. Quantum information and communication technology (ICT) is a radical solution to these challenges. Though the potential of quantum ICT was already known from the mid 1980s to 2000s, its realization has long been in question. However, Quantum ICT has come to be recognized worldwide as an emerging technology in the foreseeable future, rather than a

technology that may or may not be realized. Quantum ICT Forum (QICTF) was established to bring innovation in the quantum technology and to contribute to the realization of a creative society by working on the development and diffusion of quantum ICT. In this talk, I will review the scientific and industrial activities on quantum ICT in Japan shortly. Then, I will present efforts to encourage the triangle collaboration between the industry, government, and academia.