



Preface

Special Issue on Technical Computing

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On October 6, 2015, we received the exciting news that Professor Takaaki Kajita, Director of the Institute for Cosmic Ray Research, the University of Tokyo, had received the Nobel Prize in Physics. For over 20 years, since the launch of the Super-Kamiokande experiment in 1993, Fujitsu has been delivering and supporting systems for 24/7 collection of data on neutrinos arriving from space and analysis of neutrino oscillation and other phenomena. We were pleased to hear from Professor Kajita himself his words of gratitude: "The use of computers put us on the road to the Nobel Prize." We greatly appreciate his longtime use of Fujitsu systems.

In Japan, the Fifth Science and Technology Basic Plan adopted in 2016 highlights the use of science and technology to drive future production and manufacturing methods and foster social innovation. It emphasizes that the promotion of science and technology is becoming an increasingly important objective in Japan. Fujitsu has a long history of providing solutions for data collection and analysis in large-scale experiments at advanced research sites and for numerical simulation systems including the K computer. We have been a longtime supporter of science and technology research in diverse fields including space, astronomy, weather, and the environment.

Today, Fujitsu is also contributing to Japan's industrial sector amid calls for enhancing industrial competitiveness through science and technology. With a focus on *monozukuri* (Japanese way of manufacturing) and the life sciences, Fujitsu is promoting the use of advanced technologies including large-scale simulation systems not only for shortening development times and reducing costs but also for stimulating innovation in industry.

Fujitsu is also providing social systems toward the creation of a safe and secure society. In the field of meteorology, Fujitsu is responsible for stable, 24/7 operation of the AMEDAS/ADESS systems of the Japan Meteorological Agency for collecting and disseminating meteorological data, thereby supporting the daily lives of many people. Going forward, Fujitsu seeks to provide even more accurate information together with its customers toward enhanced disaster mitigation and minimization.

Fujitsu has also taken up new initiatives aimed at the emerging Fourth Industrial Revolution that is now taking form through innovative information and communications technology (ICT) such as the Internet of Things (IoT), artificial intelligence (AI), and big data analysis. For example, we are promoting case studies and trials together with Middle East and Southeast Asia customers in the application of AI technologies such as the use of deep learning and big data analysis of video images for smart monitoring.

In this special issue on technical computing, we introduce Nobel Prize research by members of the Institute for Cosmic Ray Research, the University of Tokyo, and present special contributions on advanced scientific topics by members of the National Astronomical Observatory of Japan and Japan Aerospace Exploration Agency (JAXA). We hope our readers find these contributions stimulating. We also introduce solutions that Fujitsu is providing in the various fields mentioned above together with case studies.

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) has been promoting the development and provisioning of the post-K computer since 2014 together with application development focusing on priority issues. Fujitsu has been selected to participate in the basic and detailed design of this computer in recognition of its contributions to the K computer. Our wish is to move forward on projects with RIKEN toward advanced simulation systems and socially beneficial applications.

In closing, I would like to take the occasion of this special issue to extend my deep appreciation to all concerned for your ongoing support and interest in Fujitsu systems and solutions in the field of technical computing. I look forward to your suggestions and guidance in the years to come.