Letter from the editor

It is now the fifth year from the launch of Synthesiology. This journal was created to cause a stir in society, out of concern that a trend in the R&D of academia and industry for pursuing the fine details of individual elemental technologies was getting stronger.

Unlike the analytic pursuits of science and elemental technology development, Synthesiology publishes papers on the ways to integrate multiple elemental technologies, or on the descriptions of technological developments that undergo the process of selecting multiple methods and approaches in establishing elemental technologies for solving issues. This can be positioned as the methodology of solution-oriented R&D that society expects, and as a result, the researchers are urged to adopt the thought pattern for providing hardware, software, and services that satisfy the customers and society.

Looking at the hit of iPad by Apple Inc. of USA and the conversion from mainframe and PC to solution provision using ICT by IBM Corporation of USA, I imagine that the readers are becoming aware of the importance of the synthesiology style of thinking. I have experienced R&D at both a private company and AIST, and so I feel that industry is much superior in actively taking in such ways of thinking and developing new products and technologies from an integrated, or synthetic, perspective. Therefore, I hope the people working in companies will submit papers and provide hints to the universities and public research institutes on how to adopt the synthesiological way of thinking.

In this issue, the paper “Toward the integrated optimization of steel plate production process” discusses the difficult issue of an essential deviation that is induced between the “lean” and “push” production models in the steel industry, develops a multiple scale hierarchical model where the technical group steps into the site of production, and verifies the practicality of the model. In the “Paleoclimate reconstruction and future forecast based on coral skeletal climatology,” a biological approach is taken to the geochemical approach using corals for the 21st century issue of global warming, to understand the phenomenon actually taking place. Future development is expected in this research. The common research methodology among these papers is the attempt to approach the essence by combining the knowledge and technologies of different disciplines that are based on different awareness. This is indeed synthesiology.

The papers of this issue are case studies that practice the concept of synthesiology. However, they do not employ some fixed methodology, and are characterized by the fact that the authors customize the methodologies that are optimal for individual issues. Over 80 papers have been published as of Volume 5 Issue 2, and I hope a new field will develop based on the synthesiological ideas and data at universities, public research institutes, and private companies.

Editor
Akira KAGEYAMA