

MESSAGES FROM THE EDITORIAL BOARD

There has been a wide gap between science and society. The last three hundred years of the history of modern science indicates to us that many research results disappeared or took a long time to become useful to society. Due to the difficulties of bridging this gap, it has been recently called the valley of death or the nightmare stage (Note 1). Rather than passively waiting, therefore, researchers and engineers who understand the potential of the research should be active.

To bridge the gap, technology integration (i.e. Type 2 Basic Research – Note 2) of scientific findings for utilizing them in society, in addition to analytical research, has been one of the wheels of progress (i.e. Full Research – Note 3). Traditional journals, have been collecting much analytical type knowledge that is factual knowledge and establishing many scientific disciplines (i.e. Type 1 Basic Research – Note 4). Technology integration research activities, on the other hand, have been kept as personal know-how. They have not been formalized as universal knowledge of what ought to be done.

As there must be common theories, principles, and practices in the methodologies of technology integration, we regard it as basic research. This is the reason why we have decided to publish “*Synthesiology*”, a new academic journal. *Synthesiology* is a coined word combining “synthesis” and “ology”. Synthesis which has its origin in Greek means integration. Ology is a suffix attached to scientific disciplines.

Each paper in this journal will present scenarios selected for their societal value, identify elemental knowledge and/or technologies to be integrated, and describe the procedures and processes to achieve this goal. Through the publishing of papers in this journal, researchers and engineers can enhance the transformation of scientific outputs into the societal prosperity and make technical contributions to sustainable development. Efforts such as this will serve to increase the significance of research activities to society.

We look forward to your active contributions of papers on technology integration to the journal.

Addendum to Synthesiology-English edition,

“Synthesiology-English edition” is a translated version of “Synthesiology” which is published quarterly, ISSN 1882-6229, by AIST.

Papers or articles published in “Synthesiology-English edition” appear approximately four months after the publication of the original “Synthesiology”. The views expressed in translated version are exclusively those of the Japanese authors and editors. The Japanese authors are generally consulted regarding the translation of their papers, but are not responsible for the published English version.

Papers or articles in the “Synthesiology” originally submitted in English are also reproduced just as they were published in “Synthesiology”. Some papers or articles in “Synthesiology” are not translated due to the authors’ or editors’ judgement.

Synthesiology Editorial Board

Note 1 : The period was named “nightmare stage” by Hiroyuki Yoshikawa, President of AIST, and historical scientist Joseph Hatvany. The “valley of death” was by Vernon Ehlers in 1998 when he was Vice Chairman of US Congress, Science and Technology Committee. Lewis Branscomb, Professor emeritus of Harvard University, called this gap as “Darwinian sea” where natural selection takes place.

Note 2 : Type 2 Basic Research

This is a research type where various known and new knowledge is combined and integrated in order to achieve the specific goal that has social value. It also includes research activities that develop common theories or principles in technology integration.

Note 3 : Full Research

This is a type of research where the theme is placed within a scenario of future society, and where a framework is developed in which researchers from a wide range of research fields can participate in studying actual issues. This research is done continuously and concurrently from Type 1 Basic Research (Note 3) to Product Realization Research (Note 5), centered by Type 2 Basic Research (Note 4).

Note 4 : Type 1 Basic Research

This is an analytical research type where unknown phenomena are analyzed, by observation, experimentation, and theoretical calculation, to establish universal principles and theories.

Note 5 : Product Realization Research

This is a type of research where the results and knowledge from Type 1 Basic Research and Type 2 Basic Research are applied to embody the use of a new technology in society.

Synthesiology – English edition Vol.1 No.3

Contents

Messages from the editorial board	i
Research papers	
Development of regenerative medical technology working toward practical application – <i>Construction of human cell processing system in view of safety for the purpose of clinical application</i> – --- H. Ohgushi	155 (1)
Development of highly-active hydrodesulfurization catalyst for sulfur-free diesel production – <i>Full research from in-house laboratory catalyst to commercial catalyst</i> – --- Y. Yoshimura and M. Toba	161 (7)
Development of massive synthesis method of organic nanotube toward practical use – <i>Integration of molecular design, molecular synthesis and safety assessment for materials having market competitiveness</i> – --- M. Asakawa, M. Aoyagi, N. Kameta, M. Kogiso, M. Masuda, H. Minamikawa and T. Shimizu	169 (15)
Development of flexible-printable device processing technology – <i>For achievement of prosumer electronics</i> – --- T. Kamata, M. Yoshida, T. Kodzasa, S. Uemura, S. Hoshino and N. Takada	177 (23)
A new density standard replaced from water – <i>Using silicon single-crystals as the top of traceability in density measurement</i> – --- K. Fujii	187 (33)
A rationalization guideline for the utilization of energy and resources considering total manufacturing processes – <i>An exergy analysis of aluminum casting processes</i> – --- H. Kita, H. Hyuga and N. Kondo	199 (45)
Article	
Launch of AIST journal <i>Synthesiology</i> – <i>Discussion with Japanese researchers at the University of Illinois at Urbana-Champaign</i> – --- H. Ohsaki and Y. Sato	209 (55)
Editorial policy	216 (62)
Instructions for authors	218 (64)