Synthesiology is a journal that describes the objectives and social value of research activities that attempt to utilize the results in society, the specific scenarios and research procedures, and the process of synthesis and integration of elemental technologies. To allow the readers to see the value of the papers in a glance, the highlights of the papers characteristic to Synthesiology are extracted and presented by the Editorial Board.

Synthesiology Editorial Board

Development of a compact, onboard slurry icemaker to rapidly produce optimal ice for maintaining freshness of marine products
Hiroshi Nagaishi et al.
This paper describes the process whereby the use of frozen seawater in slurry form was considered to maintain the freshness of marine products, and an icemaker that is low in cost, that can supply slurry ice stably, and that can be installed on fishing vessels was developed. To solve the issues that were difficult to solve by conventional technology, a new icemaker was successfully developed by fusing the technologies of mechatronics, icemaking, and freshness assessment. The paper is detailed documentation of a success story of industry-academia-government collaboration where a company, a public research institute, and a national research institute brought the techniques and know-how of their respective expertise together and worked toward one goal.

Standardization of dimethyl ether (DME) fuel specifications
Mitsuharu Oguma
Dimethyl ether is regarded promising for various uses as one of the alternatives to fossil fuel, but standardization of fuel quality is necessary in introducing this product to the market. This paper describes the details of the international standardization efforts. It is a very interesting paper that also discusses the process of defining fuel quality and test methods, details of round robin tests by institutions around the world, the adjustments among multiple countries, and the difficulty of standardization when multiple stakeholders are involved.

A study on high-density recording with particulate tape media for data storage systems
—On the process of introducing barium-ferrite tape media to the market—
Takeshi Harasawa et al.
The paper presents the re-accelerated achievement of high density in magnetic tape systems, where barium-ferrite was focused on as new material that surpassed the performance of metal magnetic material that was showing limit in achieving high density. This development was in response to the rapid increase of information and data handled in society. To realize the barium-ferrite tape, materials and peripheral technologies were developed, including tape manufacturing technology within the company and high-sensitive magnetic head and signal processing technologies outside the company. The paper outlines the process by which the de facto standardization of barium-ferrite tape was established for data storage.

Development of a cell microarray chip system for early and accurate malaria diagnosis
—Finding one parasite in 2 million erythrocytes for elimination of malaria—
Muneaki Hashimoto et al.
This paper explains the development of a quick and highly sensitive diagnostic method for malaria, which is one of the three major infectious diseases. Under the concept that it is necessary to determine the severity of infection as well as the presence of infection in order to be usable at medical settings in developing countries, a series of research was conducted including comparison of various diagnostic methods, development of a cellular chip, development of a detection method using the chip, and a verification test in Africa jointly with universities. The paper details the efforts toward social implementation of a new diagnostic method.

Electronic journal
URL
http://www.aist.go.jp/aist_e/research_results/publications/synthesiology_e/
J-Stage
https://www.jstage.jst.go.jp/browse/syntheng
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#### Aim of *Synthesiology*