Chemistry in Japan

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Dear Reader,

I am happy to present you with the December 2021 edition of our AsiaChem magazine, which echoes the Federation of Asian Chemical Societies (FACS). Concluding from the success of the previous issue, I am sure that the new one will attract even greater attention worldwide. This issue starts a tradition of unique coverage of chemistry in specific member countries within the FACS expanse. As you can see from the wealth of topics covered by this issue, the decision to focus on one country is well justified.

Japan has always been a science powerhouse, as reflected by the fact that it is the top Asian country based on Nobel and Wolf Prize records. Remarkably, of the 29 Japanese Nobel Prize Laureates, 21 received the prize since 2000. The rapidly increasing trend of awarding Asian scientists with major prizes parallels other trends. First, the center of gravity of the global scientific activity follows the apparent shift of the world economy from North America and Europe to Asia. Second, Asian countries notoriously known for their brain drain have become increasingly attractive to their scientists, thus, shifting the balance between brain drain and brain gain. And Nobel Prize Laureate Yuan-Tseh Lee has proposed to replace the term "brain drain" with "brain circulation" (https://doi.org/10.51167/acm00001).

Asian scientists are increasingly taking leadership positions in meeting the global challenges of health and climate, which have recently gained much public attention. Nevertheless, the other challenges, including sustainable energy, water quality, the dwindling raw materials, food problems, and waste management, are no less significant. The common denominator of all global challenges is their chemical nature. Although politicians and governments cannot solve these problems, they still enhance media and public awareness, thus creating lucrative opportunities for science and technology. Undoubtedly, chemists will take a dominant role in these efforts, and Asian chemists of all disciplines will continue working together across political borders and cultural barriers to secure a better world for the next generations: https://www.euchems.eu/newsletters/chemistry-in-europe-2021-4/

This issue comprises a broad variety of articles on cutting-edge science, history, essays, and interviews, serving a wide readership worldwide. The group of scientists represents the Japanese academic landscape regarding age and scientific interest. **Mitsuo Sawamoto**, Executive Director of the Chemical Society of Japan (CSJ), provides a concise overview and brief history of the CSJ, its missions, activities, and future goals. **Hiroaki Suga** and Ata Abbas of the University of Tokyo describe their innovative peptide cyclization methodologies amenable to *in vitro* display. **Takuzo Aida** and Kiyoshi Morishita of the University of Tokyo talk about supramolecular polymerization from a perspective of personal history and a sustainable future. **Yoshiaki Nakao** of Kyoto University describes cooperative catalysis for organic synthesis. **Manabu Abe**, Zhe Wang, and Rikuo Akisaka of Hiroshima University provide new Insights into the bond homolysis process and the discovery of a novel bonding system (C–π–C). **Keiji Numata** and Kousuke Tsuchiya of Kyoto University describe a structural to functional materials journey, proposing a green way to produce functional biopolymers based on polypeptides. **Takashi Uemura** and Keat Beamsley of the University of Tokyo describe a novel opportunity of using MOFs as means for polymer manufacturing. **Satoshi Maeda** and colleagues of Hokkaido University predict chemical reactivity through quantum chemical calculations. **Katsunori Tanaka** and Tsung-Che Chang of the Tokyo Institute of Technology describe *in vivo* synthetic chemistry using glycosylated artificial metalloenzymes. **Tomoki Ogoshi** of Kyoto University, the discoverer of the pillar[n]arene macrocycles, reviews their properties from simple receptors to supramolecular assemblies. **Ken Sakai** and Hironobu Ozawa of Kyushu University describe a two-electrode solar water splitting permitting hydrogen gas separation at a dark cathode.

I had the pleasure of interviewing **Ryōji Noyori** of Nagoya University, 2001 Nobel Prize Laureate, learning about his exciting career and unique views on science and education. My conversation (tête-à-tête) with **Eiichi Nakamura** of the University of Tokyo revealed a leading scientist and musician's life experience and aspirations. **Yoshiyuki Kikuchi** of the Aichi Prefectural University and **Yona Siderer** of the university of Jerusalem provide a fascinating account of the history of chemistry in Japan during 1820-1955. Three Australian scientists, **John M Webb**, **Thomas H Spurling**, and **Gregory W Simpson**, conclude this issue, discussing science diplomacy, where chemistry is crucial.

I wish to thank all these authors for opening a wide window to Japanese science and technology. Special thanks go to the graphics designer, Catharine Snell of Little Wing Designs (UK), for her contributions to the magazine's layout and unique character.

Enjoy your reading!

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