

Asian Chemists speak with one voice

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Dear Reader,

The newly born *AsiaChem* magazine echoes the voice of the Federation of Asian Chemical Societies (FACS). We believe that this biannual, free-access magazine will attract worldwide attention because it comprises diverse articles on cutting-edge science, history, essays, interviews, and anything that would interest the broad readership within the chemical sciences. All articles are authored by scientists who were born in Asian countries or actively working in Asia. Thus, eight FACS countries, including Australia, China, India, Israel, Jordan, South Korea, Taiwan, and Turkey, are represented in this inaugural issue.

Diversity

In his best-seller, *Clash of Civilizations*, Samuel Huntington argues that after the end of the Cold War, when the age of ideology had ended, the world had returned to a state of affairs characterized by cultural conflicts along the cultural interfaces. Huntington's list includes the African, Buddhist, Chinese, Hindu, Islamic, Japanese, Latin American, Orthodox, and Western civilizations. The list never suggested that one culture has an advantage over the others; it only means that they are different and should be equally respected. The Latin American Federation of Chemical Societies (Federación Latinoamericana de Asociaciones Químicas, FLAQ) spans a culturally homogeneous region, whereas the European Chemical Society (EuChemS) spans three cultural areas (Western, Orthodox, and Islamic), and the Federation of African Societies of Chemistry (FASC) also spans three civilizations (Western, African, and Islamic). By comparison, the FACS represents the most diverse organization, spanning seven different cultures (Buddhist, Chinese, Hindu, Islamic, Japanese, Orthodox, and Western). This enormous heterogeneity, which has created significant challenges over the long Asian history, offers exciting opportunities in our times.

Shifting center of gravity

The center of gravity of the global economy is steadily shifting to Asia, and so is the scientific activity. A recent NSF report on "The State of U.S. Science and Engineering" states that the changing global landscape affects the USA position relative to the other major international players. The report indicates that the USA's share of global science and technology activity remains unchanged or is shrinking, even as its absolute activity levels have continued to rise. While the gross domestic expenditures on R&D doubled in the USA and Europe between 2000 and 2017, it increased by 5-fold in East, South, and Southeast Asia. While in 2000, the USA and Europe published 62% of all Science and Engineering publications worldwide, their share changed to 41% by 2018. The USA and Europe still produce the most cited papers, but Asian publications are rapidly closing the gap. Asian scientists are clear frontrunners in the arena of intellectual property. For example, in 2018, the five leaders of patent families worldwide were China (49.4%), Japan (17.5%), South Korea (12%), Europe (7.2%), and the

USA (6.8%). Clearly, the FACS member societies stand at a unique intersection with new opportunities and significant responsibilities.

Circulating grey matter

These trends have a profound influence on the Asian balance between brain-drain and brain-gain. Countries notoriously known for brain-drain symptoms have become increasingly attractive for their scientists. We witness an increasing reverse flow of scientists who previously preferred to develop their professional careers abroad. Homeland culture, social awareness, and national solidarity attract emigrant scientists and their descendants who were born and educated abroad. In his interview, Nobel Prize Laureate Yuan-Tseh Lee argues that an adequate brain circulation notion should now replace the term brain-drain.

Beyond borders

Most global challenges, including global warming, food for everybody, the race for sustainable energy, water quality, dwindling raw materials, and health problems, are chemical problems by nature. Therefore, humankind cannot meet these challenges without the chemical sciences and will not solve any of these problems without global cooperation. Chemists have always been doing much better than politicians in meeting these challenges, working together across borders through unique collaboration and friendship. Despite fundamentally different political systems and cultural diversity, chemists go beyond borders, find each other, share their findings, and solve problems together.

The global changes and the unique role of chemistry in meeting global challenges position the FACS at a unique crossroad with new opportunities and significant responsibilities. The FACS can and should assume a leadership role in catalyzing the unification and cooperation among multiple communities of chemists of various cultures. Accordingly, the *AsiaChem* magazine can reflect and facilitate collaboration among chemists across the Asian continent.

Finally, I thank all authors who deserve much credit for the high quality of this endeavor. I appreciate the FACS, IUPAC, EuChemS, and ACS leadership for their generous support and greetings on the magazine's inauguration. Special thanks go to Catharine Snell of *Little Wing Designs* for the layout and design, and the professional staff at the Israel Chemical Society. I'll be grateful for receiving comments and new ideas on how to improve the magazine. Please send your messages directly to keinan@technion.ac.il

Enjoy your reading!

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