Q-AOS 九州大学 アジア・オセアニア研究教育機構 ブラウンバッグセミナー

Brown Bag Seminar No.110

2023 9.6 (wed.) 12:10 ~ 12:50

12:10-12:15 ◆ Introduction
12:15-12:40 ◆ Seminar (Presentation)
12:40-12:50 ◆ Q&A

Online (Zoom)
Scan here for Registration

https://temdec-med-kyushu-u-ac-jp.zoom.us/webinar/register/WN_UB5LIDb_TPGmPnQprds3EA

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Solid sorption cycles for realizing carbon-neutral energy society

Chair: **Assoc. Prof. Kim SCHUMACHER** (Research Futures Coordinator of Q-AOS)

Key Words: adsorption, carbon-neutral, cooling, desalination, energy efficiency

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Bidyut Baran Saha was born in Noakhali, Bangladesh, currently working as a Professor and Principal Investigator at the International Institute for Carbon-Neutral Energy Research (WPI-I2CNER) of Kyushu University, Japan, and a Professor at the Mechanical Engineering Department of Kyushu University. He received his B.Sc. (Hons.) and M.Sc. degrees from Dhaka University of Bangladesh in 1987 and 1990, respectively. He was the first Bose Fellow at the University of Dhaka from January 1991 to December 1992. He received his Ph.D. in 1997 from the Tokyo University of Agriculture and Technology, Japan. His research interests include thermally powered adsorption cooling, refrigeration and desalination systems, heat and mass transfer analysis, energy efficiency assessment and energy policy. He has published more than 400 articles in peer-reviewed journals. He has edited nine books and holds thirty-one patents. His Google Scholar Citations are above 20,000 with an h-index of 75 and an i10-index of 350. He is the founding Editor-in-Chief of Evergreen journal, Associate Editor of Thermal Science and Engineering Progress (Elsevier), and Specialty Chief Editor of Frontiers in Thermal Engineering. His most recent book is titled, "Rapid Refrigeration and Water Protection: Next Generation Adsorbents" published by Springer 2022. Currently, he is working as the Foreign PI of the Scheme for Promotion of Academic and Research Collaboration (SPARC) Project, MHRD, Government of India and World Class Professor (WCP), Ministry of Research, Technology, and Higher Education, Republic of Indonesia, to develop research and cooperation programs with Universitas Indonesia. He has supervised more than 35 doctoral students as of date and several of his graduates are now working as professors/associate professors/faculty members in various academic institutions or as R&D managers in industries around the world.

The world urgently needs to switch to green energy. During the 26th conference of parties (COP26), which was held in Glasgow in November 2021, the world leaders reaffirmed their commitment to keeping global temperature increases to 1.5 degrees and promised to speed up climate action right away. The main objective of the present study is to demonstrate our research and development efforts toward building a society with carbon-neutral energy. We will present several low-temperature thermal energy powered adsorption-based cycles and their key performance data (the effect of heat source temperature on cooling capacity and coefficient of performance, etc). We will introduce, for instance, the adsorption cooling and adsorption cooling cum desalination cycles because they are economical, environmentally benign, and only use low-temperature waste heat typically below 100 deg C as their primary energy source. It is noteworthy to mention that the adsorption cooling cum desalination system can produce three beneficial outcomes from a single heat source.

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