

Symposium on Emerging Trends in Separation Science and Technology (SESTEC-2008)

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Editorial

Separation science is playing an increasingly important role in developing new technologies particularly relevant for Electronics, pharmaceutical, petrochemicals and nuclear industry. It also plays a key role in environmental and health sciences. Starting from the conventional separation processes such as sieving, leaching, distillation, solvent extraction, etc. to the contemporary techniques like membrane based separation, supercritical fluid extraction and modeling, the separation science has evolved a great deal during the last one decade. In view of the growing need for high purity materials and stringent international safeguards, separation science is playing increasingly critical role in the nuclear industry. It is truly a multidisciplinary area where a synergy amongst chemical, material, physical and engineering sciences is desirable to develop innovative solutions (to the complex tasks) which can also address to the environmental and economic issues. Development of green/selective solvents, laser based isotope separation processes, materials suitable for radiation resistant membranes and electrochemical cells (needed for pyrochemical processing of short cooled fuels) and design of efficient centrifugal contactors are few examples of the challenges to be addressed in the area of separation sciences in the nuclear industry. The DAE (Department of Atomic Energy, India) – BRNS (Board of Research in Nuclear Sciences) sponsored biennial Symposium on Emerging Trends in Separation Science and Technology (SESTEC) has been providing a platform to the active researchers in this area since 2004. The scope of SESTEC includes synthesis of novel reagents, modeling studies and development of novel separation techniques viz., solid phase extraction, membrane based separations, bio-remediation, supercritical fluid extraction and pyro-chemical processing etc.

SESTEC-2008 was the third in the series of symposia organized by DAE-BRNS. It was a matter of great privilege for us that a large number of eminent scientists from overseas and from various academic institutions / national laboratories within India readily agreed to share their experience with us in the three day meeting held at University of Delhi, Delhi. In all, twenty nine invited talks and about 137 research papers were presented at the Symposium. Almost all the presentations reflected the advancements in the knowledge in the contemporary areas of separation science. However, due to the constraints of publication, editors had to restrict to twenty contributions for this special volume of *Desalination and Water Treatment*. It is our privilege to acknowledge the support of Dr. T.G. Srinivasan, Dr. Vasily Babain, Dr. E. Mowafy and Mr. T.K. Haldar who helped in the review of contributions. We earnestly hope that the readers will find the articles in this volume (representing diverse areas of separation science and technology) valuable for their R&D pursuits. With the help of contributors, we will endeavour to maintain the bench mark for the proceedings of future SESTEC symposia.

We would like to acknowledge the support of DAE-BRNS for sponsoring SESTEC-2008. We are particularly thankful to Dr S. Banerjee, Director, BARC, for his guidance as Chairman Organizing Committee, SESTEC-2008. We are extremely thankful to Prof. Miriam Balaban, Editor, and *Desalination and Water Treatment* for kindly agreeing to bring out this special volume.

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