

## Preface

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Ever since the discovery of fast solid ion conductors and realization of their technological importance, the multidisciplinary research area of “*Solid State Ionics*” is growing at a fast pace leading to technological innovations creating new benchmarks in the development of devices such as high-energy density storage devices, fuel cells, sensors, electrochromics, resistive switches, and memristors. Worldwide depletion of fossil fuel and growing alertness for “*zero emission*” for environmental protection has mandated search of alternative green and clean energy sources providing momentum to focused research leading to development especially of fuel cells, advanced batteries, and supercapacitors in recent years. This challenge of the twenty-first century has created a new opportunity for the entire solid state ionics community to ideate, innovate, create, and shape the energy needs for sustainable growth. All this effort requires a complete research “*from concept to technological reality*” as per need of the hour.

Therefore, the Asian Society for Solid State Ionics (ASSSIS) was founded in 1986 in Singapore with the aim of

greater interaction and exchange of information among scientists working in the area of solid state ionics in Asian countries by meeting biennially to exchange ideas. The first Asian conference was organized at NUS, Singapore, in 1988. Since then, the series of Asian conference on solid state ionics has been held on biennial basis in different Asian countries on rotation; Beijing, China (1990), Varanasi, India (1992), Kuala Lumpur, Malaysia (1994), Kandy, Sri Lanka (1996), New Delhi, India (1998), Fuzhou, China (2000), Langkawi, Malaysia (2002), Jeju, South Korea (2004), Kandy, Sri Lanka (2006), Coimbatore, India (2008), Wuhan, China (2010), Sendai, Japan (2012), NUS, Singapore (2014), and finally at IIT Patna, India (2016).

It has been beauty of Asian SSI conferences that, though organized under the banner of Asian Society, reputed scientists from all over the world actively participated in this meeting. At the 15th Asian SSI meeting held during November 27–30, 2016, at IIT Patna (India), speakers and delegates from 17 countries including the USA, Canada, France, and UK participated apart from the participants from member Asian countries. Around 300 participants actively took part in this event with three parallel sessions comprising three plenary lectures, 32 keynote lectures, and 30 invited lectures apart from 48 oral and 165 poster presentations spread over 4 days. The theme of this conference was “*solid state ionics – from concepts to technological reality*” and it comprised discussion on a broad range of topics including theory and modeling of ion/electron/mixed conductors, novel techniques in solid state ionics, ionic liquids, conducting polymers, polymer electrolytes, polymer nanocomposites, ceramics, composites, ionic devices (device components), sensors, storage/conversion devices, electrochromic display devices, and nano-ionics.

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The technical quality of the papers presented at the conference was of high standard. The organizing committee therefore decided, first time for Asian SSI conference papers, to publish the submitted original papers in a special issue of the reputed journal *IONICS*. We express our gratitude to the *IONICS* editorial team for supporting the entire publication process after online submission of the manuscript by authors. All papers have been refereed according to the standards of submission of original papers.

We are thankful to the members of the International Advisory Committee of the 15th ACSSI and the technical program committee, speakers (plenary/keynote/invited), delegates from 17 countries, members of local organizing committee, and conference patrons.

Last, but not the least, sincere thanks are due to all the sponsors for their generous support that enabled us in organizing the event smoothly with success.