



Preface

Special issue for the 15th International Conference on Solid State Proton Conductors (SSPC-15)

The field of solid state protonics has had a small but dedicated following for the past several decades. The collection of papers compiled in this special issue of Solid State Ionics were presented at the most recent international conference focused specifically on this topic, the 15th International Conference on Solid State Proton Conductors (SSPC-15) held in Santa Barbara, California, United States, August 15–20, 2010. Early recognition of the importance of proton transport in solids led to the establishment of the first meeting in this series in 1981, held in Paris in the form of a Danish–French workshop. The subsequent thirteen meetings were all held in Western Europe, with increasing participation from Asian, Eastern European and North and South American researchers. In recognition of the growing international interest in the field, SSPC-14 was held in Kyoto, Japan. SSPC-15, the first North American meeting in this series, built on the momentum of internationalization achieved in SSPC-14, ensuring that the best and brightest minds continue to contribute to the important problems still facing the understanding and manipulation of proton transport in solids. This occasion warrants an update to the SSPC history, and is given below.

No	Location	Date	Chair(s)
15	Santa Barbara, CA, USA	2010, Aug. 15–19	Sossina Haile, Sangtae Kim, Stephen Paddison
14	Kyoto, Japan	2008, Sept. 7–11	Shu Yamaguchi
13	St. Andrews, Scotland	2006, Sept. 4–6	John Irvine, Hiroyasu Iwahara
12	Uppsala, Sweden	2004, Aug. 15–19	Josh Thomas
11	Guildford, England	2002, Aug. 27–30	M. Saiful Islam
10	Montpellier, France	2000, Sept. 24–28	Jacques Roziere, Deborah Jones, Monique Tillard
9	Bled, Slovenia	1998, Aug. 17–21	Gojmar Lahajnar, Janez Dolenšek, Robert Blinc
8	Storefjell, Norway	1996, Aug. 8–23	Truls Norby
7	Schwäbische Gmünd, Germany	1994, Aug. 29–Sept. 1	Klaus-Dieter Kreuer
6	Villard de Lans, France	1992, Sept. 6–11	Joachim Maier, Christiane Poinssignon, Pierre Aldebert
5	Assisi, Italy	1990	Giulio Alberti
4	Exeter, England	1988	Robert C. T. Slade
3	Hérault, France	1984	
2	Hindsgavl Castle, Denmark	1982	
1	Paris, France	1981	

The conference began with a plenary lecture by Professor Shu Yamaguchi of the University of Tokyo, followed by a mixture of invited (11), keynote (7), and contributed (24) lectures. In addition, about 60 posters were presented in two evening sessions. Despite the financial

impact of a worldwide economic slowdown, more than one hundred participants attended the conference with relatively equal representation between Asia, Europe and North America. Abstract submissions were dominated by Japan (31), USA (23) and Norway (13). The venue, the Santa Barbara campus of the University of California, added to the delightful atmosphere of international exchange. The exhilarating beachside views reminded participants that protons are everywhere, and that many of the energy and environmental technologies relying on an understanding of protonics will play leading roles in preserving the natural beauty of such settings. Overall, the oxide proton conductors were the topic of greatest interest, reflecting the deep history of Japanese involvement in these materials. Critical advances were described in both the understanding of the transport properties and the fabrication of technological devices, with particular emphasis on fuel cells. Interest in polymer and oxyacid proton conductors was also high, as with previous meetings. Again, advances in fundamental mechanistic understanding of proton transport pathways were reported in parallel with advances in device development. While only a subset of papers presented at SSPC-15 are included in this special issue, the articles reflect the breadth of topics covered. The reader is encouraged to browse the papers beyond his or her area of expertise to experience directly the remarkable breakthroughs reported at SSPC-15.

The conference would not have been possible without the tireless efforts of the local organizing committee or the generous support of several federal funding agencies. The former consisted of Yoshihiro Yamazaki, Áron Varga, Mary Louie, Ayako Ikeda, and Chatr Panithipongwut. Funding was provided by the U.S. National Science Foundation, the U.S. Department of Energy, the U.S. Army Research Office, the Dokiya Fund of the Electrochemical Society and the High Temperature Materials Division of the Electrochemical Society. These funds supported the attendance of several students and younger scientists, ensuring the induction of the next generation of researchers into the field. Beyond financial assistance, the Electrochemical Society provided indispensable logistical support, for which the organizers are grateful. In addition, the staff of the U.C. Santa Barbara conference services center are to be thanked for their gracious attention to all of the on-site details.

With each passing SSPC the bar for scientific achievement, international intellectual exchange, and inviting venue rises. It is a pleasure to the pass the baton for this conference on to the next group, and we look forward to even greater successes at SSPC-16 to be held in Grenoble, France in September 2012.

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Guest Editors