

PREFACE

Materials science is an interdisciplinary and integrated research field. Without its development, human society cannot make progress. Materials science concerns the relationship among microstructure, processing and property of materials. Although ceramics were anciently invented, modern ceramics are advancing rapidly, leading into new fields far beyond the conventional image of ceramics. The properties of materials, in particular ceramics, are strongly affected by processing, and thus a new processing can produce new materials which can trigger significant development of society. We, thereupon, have organized the joint conference of ISAC-5 (the 5th International Symposium on Advance Ceramics) and ASPT2013 (International Symposium on Advanced Synthesis and Processing Technology for Materials 2013) in December 9 to 12, 2013 in Wuhan, China.

ISAC has been aiming to discuss the recent achievement of advanced engineering and functional ceramics and composites. ISAC-4 was held in November 2010 in Osaka after ISAC-3 in December 2006 in Singapore, ISAC-2 in November 2002 in Shanghai, China and ISAC-1 in October 1997 in Kurume, Japan. ASPT, on the other hand, has been focusing on synthesis and processing of inorganic materials using non-traditional technologies such as SHS, SPS, mechanical alloying etc. ASPT11 was held in December 2011 in Sendai, Japan and ASPT08 in November 2008 in Wuhan, China.

The joint conference was open to everyone in the fields of ceramics, metals and composites to provide an opportunity for cross-pollination of knowledge and experiences in interdisciplinary fields of materials science, technology and processing. This conference was co-organized by the 124th Committee on Advanced Ceramic Materials, the Japan Society for the Promotion of Science, and Wuhan University of Technology.

The conference comprised of keynote lectures by Professor Enrique J. Lavenia, University of California, Davis, USA, Professor Donglian Jiang, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China, and Professor Ctirad Uher, University of Michigan, USA., and 99 oral presentations from 15 countries. This volume contains 58 papers accepted by a peer review process. The editors would like to express their heartfelt gratitude to all the members of the Local Committee, and to Professor Qingjie Zhang, President of Wuhan University of Technology, for their great contributions and assistance in the organization of the conference.

We hope that these international symposia will continue to provide an open forum for the discussion of achievement in all aspects of research and development in the fields of advanced ceramics and processing.

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Sendai, Wuhan, 2014

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