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## **Frontiers of glass science**

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## Frontiers of glass science

The collection of review papers in this special issue are based on invited talks presented within the Symposium *Frontiers of Glass Science* at the 7th International Congress on Ceramics held in beautiful Foz do Iguacu (Brazil) from June 17–21, 2018. All submissions address fundamental problems, and the authors provide critical mini-reviews of the state-of-art within their subfield, in addition to pointing out open, relevant issues.

The nine invited review papers cover various aspects of the *structure, dynamics, and properties* of inorganic glasses. Advances in glass structure analysis are reviewed by D. Möncke (Alfred University) in “Review on the Structural Analysis of Fluoride-Phosphate and Fluoro-Phosphate glasses,” U. Hoppe (Rostock University) in “Structure of tin phosphate glasses by neutron and X-ray diffraction,” and M.C. Wilding (Sheffield Hallam University) in “Exploring the structure of glass-forming liquids using high energy X-ray diffraction, containerless methodology and molecular dynamics simulation.”

P. Lucas (University of Arizona) reviews the fascinating dynamics of glass-forming liquids in the paper “Fragile-to-Strong Transitions in Glass Forming Liquids.” J.S. McCloy (Washington State University) gives insights into natural glasses in the paper “Frontiers in Natural and Unnatural Glasses: An Interdisciplinary Dialogue and Review.” At the

same time, A. Goel (Rutgers University) discusses the technological challenges in nuclear waste immobilization in the paper “Challenges with Vitrification of Hanford High-Level Waste (HLW) to Borosilicate Glass - An overview.” The application of machine learning to inorganic glasses is reviewed by M. Bauchy (University of California, Los Angeles) in “Machine Learning for Glass Science and Engineering: A Review.” Finally, two reviews on indentation and damage resistance of glasses are presented by M.M. Smedskjaer (Aalborg University) in “Indentation Deformation in Oxide Glasses: Quantification, Structural Changes, and Relation to Cracking” and S. Yoshida (The University of Shiga Prefecture) in “Indentation Deformation and Cracking in Oxide Glass -Toward Understanding of Crack Nucleation.”

We wish to thank all the anonymous reviewers and authors of these review papers for their efforts and valuable contributions. We firmly believe this article collection will be most useful for glass science community.

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