

## Frontiers of glass science

Smedskjaer, Morten M.; Zanutto, Edgar D.

*Published in:*  
Journal of Non-Crystalline Solids: X

*DOI (link to publication from Publisher):*  
[10.1016/j.nocx.2020.100059](https://doi.org/10.1016/j.nocx.2020.100059)

*Creative Commons License*  
CC BY-NC-ND 4.0

*Publication date:*  
2021

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

*Citation for published version (APA):*  
Smedskjaer, M. M., & Zanutto, E. D. (2021). Frontiers of glass science. *Journal of Non-Crystalline Solids: X*, 9-10, Article 100059. <https://doi.org/10.1016/j.nocx.2020.100059>

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

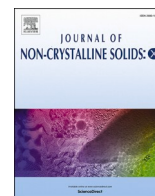
### Take down policy

If you believe that this document breaches copyright please contact us at [vbn@aub.aau.dk](mailto:vbn@aub.aau.dk) providing details, and we will remove access to the work immediately and investigate your claim.



# Journal of Non-Crystalline Solids: X

journal homepage: [www.sciencedirect.com/journal/journal-of-non-crystalline-solids-x](http://www.sciencedirect.com/journal/journal-of-non-crystalline-solids-x)



## 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.

Morten M. Smedskjaer, Edgar D. Zanotto\*

E-mail address: [dedz@ufscar.br](mailto:dedz@ufscar.br) (E.D. Zanotto).

<https://doi.org/10.1016/j.nocx.2020.100059>

Available online 17 December 2020  
2590-1591/© 2020 The Authors.

Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).