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Previtreous Behavior in Glass-Forming Systems: The Impact of Molecular Structure

Guest Editor:

Dr. Aleksandra Drozd-Rzoska
Institute of High Pressure Physics, Polish Academy of Sciences, ul. Sokołowska 29/37, 01-142 Warsaw, Poland

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Message from the Guest Editor

For decades, explaining and coherently combining phenomena related to the transition to the amorphous glass state has been highlighted as the grand challenges of science. The fundamental attractor for researchers is probably the deep belief in the universality of the phenomenon, which manifests itself through several surprisingly similar, almost isomorphic, scaling patterns in seemingly qualitatively different systems. An example of a universalistic metric is the so-called fragility, phenomenologically categorizing non-Arrhenius changes of the primary relaxation time or viscosity, the glass transition hallmark feature.

Existing records have associated the fragility with a type of intermolecular interactions. However, it has been shown that molecular structural symmetry is at least as important. However, the question arises whether and how these molecular factors affect other universal characteristics of glass transition, e.g., orientational-translational decoupling, non-primary relaxation processes, or the emergence of non-dynamic previtreous changes, recently noted.

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Editor-in-Chief

Prof. Dr. Maurizio Battino
Department of Odontostomatologic and Specialized Clinical Sciences, Sez-Biochimica, Faculty of Medicine, Università Politecnica delle Marche, Via Ranieri 65, 60100 Ancona, Italy

Message from the Editor-in-Chief

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International Journal of Molecular Sciences Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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