
Structures of simple and more complex glasses studied by advanced solid-state NMR methods

Franck Fayon^{*†1}, Pierre Florian¹, Valérie Montouillout¹, Nadia Pellerin¹, Michael Deschamps¹, and Dominique Massiot¹

¹Conditions Extrêmes et Matériaux : Haute Température et Irradiation – Université d'Orléans : UPR3079, Centre National de la Recherche Scientifique : UPR3079, Université d'Orléans, Centre National de la Recherche Scientifique – France

Abstract

Over the past 30 years, solid-state NMR spectroscopy has emerged as a relevant technique to study the nature of the atomic arrangement in glasses and more generally in disordered systems. Constant technological and methodological advances have allowed to extend the range of observations, from local structure to longer range order, while being able to probe isotopes of lower NMR-sensitivity. At the same time, advances in computational and modeling methods have enabled deeper interpretations of experimental NMR data based on atomistic models. In this work, we will illustrate these recent advances applied to the study of simple or more complex oxide glasses exhibiting phase separation phenomena.

Keywords: solid state NMR, glasses, structure

^{*}Speaker

[†]Corresponding author: franck.fayon@cnrs-orleans.fr