MM 9: HV Faupel

Time: Monday 14:00–14:30 Location: H16

Invited Talk MM 9.1 Mon 14:00 H16

Dynamic arrest in multicomponent glass forming alloys — •Franz Faupel[1], Alexander Bartsch[1], Klaus Rätzke[1], and Andreas Meyer[2] — [1]Institut für Materialwissenschaft - Materialverbunde, Technische Fakultät, Christian-Albrechts- Universität zu Kiel, Kaiserstr. 2, D-24143 Kiel, Germany — [2]Institut für Materialphysik im Weltraum, Deutsches Zentrum für Luft- und Raumfahrt (DLR), 51170 Köln, Germany

We report radiotracer diffusivities in Pd- and Zr-based melts, presenting for the first time a complete set of data for all components over the whole relevant temperature range. While a vast decoupling of more than 4 orders of magnitude is observed between the diffusivity of Pd and of the smaller components, at the glass transition temperature T_g, the diffusivities of all components merge close to the critical temperature T_c of mode coupling theory. For Pd, the Stokes-Einstein relation holds in the whole range investigated encompassing more than 14 orders of magnitude suggesting the formation of a slow subsystem as a key to glass formation. In multicomponent Zr-based melts, dynamic heterogeneities and a slow Zr subsystem even exist in the equilibrium melt far above T_c.