

## Generalized collective modes in binary metallic glasses

T. Bryk and I. Mryglod

<sup>a</sup>*Institute for Condensed Matter Physics of the National Academy of Sciences of Ukraine, 1 Svientsitskii Str., 79011 Lviv, Ukraine*

<sup>b</sup>*Lviv National Polytechnic University, Institute of applied mathematics and fundamental sciences, 12 S. Bandery Str., 79013 Lviv, Ukraine*

We report an extension of the approach of Generalized Collective Modes (GCM), which is one of the most advanced methods of analysis of collective dynamics in liquids, on the case of glass systems. The extension permits to treat ultra-slow dynamic variables on the same footing as the hydrodynamic variables and more short-time dynamic variables.

The developed approach is applied to analysis of collective dynamics in a binary metallic glass  $\text{Mg}_{70}\text{Zn}_{30}$ . Time correlation functions, derived in molecular dynamics simulations, are analyzed in order to estimate the spectra of longitudinal and transverse collective modes. Special attention is paid to contributions from concentration fluctuations to the Boson-peak modes.