Glass transition temperature and interpartial dynamics in nickel based binary alloys

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Particle transport processes in dense melts are governed by highly cooperative phenomena. This makes available to predict their physical properties based on their structural-temporal properties. We discuss the dependence of self- and inter-diffusion and collective coefficients on temperature and composition of melts. Earlier it was shown that certain spatio-temporal characteristics reflect the processes of transfer and glass transition [1]. The analysis of the behavior of the glass transition temperature is compared with experimental data for similar systems [2,3]. The analysis of interparticle interactions demonstrates a similar dependence of partial functions on the percentage composition of alloys found earlier in experiment [4] and MD simulation [5], reaching saturation with a change in the qualitative nature of the collective transfer of melt particles. This work was supported by the grant of the President of Russian Federation(project No. 17-79-20391). The authors acknowledge the JIHT RAS HPC and HSE University HPC Cluster "Charisma".

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