HETEROGENEOUS NUCLEATION IN $Fe_{41}Ni_{40}Zr_7B_{12}$ MELT: MODELING AND EXPERIMENT

S.A. Kostyrya[a], B. Idzikowski[b]

[a]Donetsk Physics and Engineering Institute, NAS of Ukraine,
R. Luxemburg 72, 83114 Donetsk, Ukraine

[b]Institute of Molecular Physics, Polish Academy of Sciences,
M. Smoluchowskiego 17, 60-179 Poznań, Poland

A numerical approach to description of the cooling and crystallization processes in a melt-spinning technique has been proposed. This model predicts the large critical thickness of melt layer crystallizing by heterogeneous nucleation, using the values of the thermodynamic and kinetic parameters which control crystallization of metallic glasses upon heating. The dominant contribution of this type of nucleation to the $Fe_{41}Ni_{40}Zr_7B_{12}$ melt crystallization has been confirmed and the most probable values of the heterogeneous sites density and wetting angle have been estimated.