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Influence of vibration on thermocapillary instability in a binary mixture with Soret effect IRINA FAYZRAKHMANOVA, Technion - Israel Institute of Technology, Haifa, Israel, SERGEY SHKLYAEV, ICMM UB RAS, Perm, Russia and California Institute of Technology, Pasadena, CA, USA, ALEXANDER A. NEPOMNYASHCHY, Technion - Israel Institute of Technology, Haifa, Israel — Influence of vibration on the onset of Marangoni convection in a layer of a binary mixture with the Soret effect is studied in the framework of the linear stability theory. At the rigid bottom boundary of the layer a fixed heat flux is specified; the free top boundary is assumed to be nondeformable. The vibration frequency is low, the amplitude is sufficiently large to provide finite values of the inertia force. Formerly, the stability with respect to longwave disturbances was studied [1]. In the present talk, the analysis is extended to the case of arbitrary wavenumbers. The Wentzel-Kramers-Brillouin (WKB) method is applied for the computation of growth rates of disturbances with finite wavenumbers. It is shown that the longwave mode is critical only within a certain interval of the Soret number. Outside of that interval, either monotonic or oscillatory mode with a finite value of the wavenumber is critical. The authors acknowledge the support of joint grants of IMS (No. 3-5799) and RFBR (No.09-01-92472); grant of the EU PITN- GA-2008-214919 (MULTIFLOW) and ISF (No. 680/10). [1] I.S. Fayzrakhmanova, S. Shklyaev, A.A. Nepomnyashchy, (submitted to Phys. Fluids).

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