**Influence of nonlinear temperature dependence of surface tension on longwave oscillatory Marangoni patterns** ALEXANDER MIKISHEV, Sam Houston State University, ALEXANDER NEPOMNYASHCHY, Technion — In most theoretical papers on Marangoni convection the authors assume the linear dependence of the surface tension on temperature. However, according to experiments, that dependence is more complex. In the present work, we consider the influence of nonlinear temperature dependence of surface tension on the nonlinear dynamics of waves created by an oscillatory instability recently discovered in [1] in the limit of small Biot number $Bi$ and wavenumber $k$, $k \tilde{} Bi^{1/2}$. Near the critical Marangoni number, that dependence is described by a Taylor series around the reference temperature value. The set of amplitude equations governing the nonlinear interaction of waves has been derived. The stability of different wave patterns and wave pattern selection are investigated. REFERENCE. [1] S. Shklyaev, A. Alabuzhev, and M. Khenner, Phys. Rev. E, **85**, 016328 (2012).

Alexander Mikishev
Sam Houston State University

Date submitted: 24 Jul 2019 Electronic form version 1.4