# Hydrodynamics modeling of the generation of extended homogeneous layers from plate and a layered target

**Shutov A.V.**[1,@] **and Iosilevskiy I.L.**[2]

[1] Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of the Russian Academy of Sciences, Academician Semenov Avenue 1, Chernogolovka, 142432,
[2] Joint Institute for High Temperatures of the Russian Academy of Sciences, Izhorskaya 13 Bldg 2, Moscow, 125412, Russia

[@] shutov@ficp.ac.ru

It is known that in an expansion wave, isentropic kink at the boiling point leads to the formation of a homogeneous, extended region of matter with constant kinematic and thermodynamic parameters ("plateau"). It was previously emphasized ( [1]) that the thermodynamic state of matter in the "plateau" zone exactly corresponds to the boundary of the two-phase region, both on the side of the boiling liquid and on the side of saturated steam, including the area of the critical point. It was recommended to use the term "Binodal layer (BL)" as part of the thermodynamic analysis of the "Plateau" phenomenon, and the term "Phase Freeze" for the entire complex of processes associated with BL generation.
The purpose of this work is to search within the framework of hydrodynamic modeling for the possibility of generating homogeneous, extended, thermodynamically equilibrium zones with parameters within the boundaries of the two-phase region of the model substance, with adiabatic expansion of an isochorically heated assembly of periodically arranged plates. By selecting the energy level and the ratio of the plate thickness and the gap between the plates, a solution was obtained in which the entire target substance, after pressure equalization, is in a two-phase region at zero mass velocity and constant sufficiently high temperature.

[1] Iosilevskiy I 2014 "phase freezeout" in isentropically expanding matter (*Preprint* 1401.5481) URL `https://arxiv.org/abs/1401.5481`