

# Non-stationary plasma population kinetics included in-line in the RHD calculation

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To describe experiments on modern high-energy facilities, more and more accurate physical and mathematical models are required. In particular, in the RHD simulation of radiating plasma driven by high-power lasers or X-rays, for some cases it becomes necessary to take into account the non-stationarity of the kinetics of the ground and excited states of ions.

In the Keldysh Institute of Applied Mathematics RAS the THERMOS\_RHD code based on the consistent solution of radiative hydrodynamics and non-stationary population kinetics has been developed [1, 2]. The report presents some calculation results for special cases, where the effects of non-stationarity are important.

Calculations were performed on the hybrid supercomputer K-100 installed in the Supercomputer Centre of Collective Usage of KIAM RAS and MVS-10P JSCC RAS.

- [1] Kim D A, Vichev I Y, Solomyannaya A D and Grushin A S 2022 *High Energy Density Physics* **45** 101018
- [2] Basko M M 2022 *DELIRA: a multi-purpose 1D hydrodynamics code*, <http://basko.net/mm/DELIRA/delira.html> (Moscow)