Abstracts

See [http://www.damtp.cam.ac.uk/iwpctm9/](http://www.damtp.cam.ac.uk/iwpctm9/) for full colour version of abstracts.

Cover artwork: The main entrance to the Centre for Mathematical Sciences. Alison Hart/Stuart Dalziel
Logo: Rayleigh-Taylor instability in a tilted tank; based on an experiment by Joanne Holford.
Growth rate of mixing zone in a direct numerical simulation of Rayleigh-Taylor multimode instability development

Vladislav Rozanov¹, Roman Stepanov¹, Mikhail Anuchin², Yury Yanilkin³, Nadezhda Proncheva⁴ & Nikolai Zmitrenko⁴

1. P.N. Lebedev Physical Institute of RAS, Moscow, Russia
   rozanov@sci.lebedev.ru

2. Russian Federal Nuclear Center – All-Russia Scientific Research Institute of Technical Physics, Snezhinsk, Russia
   m.g.anuchin@vniitf.ru

3. Russian Federal Nuclear Center – All-Russia Scientific Research Institute of Experimental Physics, Sarov, Russia
   yan@md08.vniief.ru

4. Institute of Mathematical Modelling of RAS, Moscow, Russia
   zmitrenko@imamod.ru

On the base of many 2D numerical simulations of Rayleigh-Taylor instability development, which have been performed in the framework of ISTC Project #1481, the approximate formula was suggested to describe a mixing zone width variation with time. The initial perturbation is a sum of different modes with wavelength and amplitude, which are defined by certain law, and a random phase. The proposed formula has an asymptotic, corresponding to a spike movement with a constant velocity. Contributions of different modes to a zone width is described by the weights, depending on time and simulating the destruction of a given spike due to Kelvin-Helmholtz instability (Zmitrenko et al.(1997)). Different models of mixing zone growth are discussed.

The research is supported by ISTC, Project #1481.

References

Zmitrenko, N.V., Proncheva, N.G., Rozanov, V.B., 1997 The evolution model of a turbulent mixing layer; Preprint FIAN #65, Moscow.