

Laboratory of Nonlinear Processes in Hydrodynamic Systems
Novosibirsk State University, Department of Mechanics and Mathematics



Sergey L. Gavrilyuk

Invited scientist, Professor
Aix-Marseille University,
Novosibirsk State University
and UMR CNRS 7343

H-index (WoS) = 13



Alexander A. Chesnokov

Head of Laboratory, D.Sc.
Novosibirsk State University
and Lavrentyev Institute of
Hydrodynamics SB RAS

Staff of the Lab

D.Sc.	4
PhD	5
PhD Students	3
Students	6

The main research areas of the Lab are: **Marine hydrodynamics and wave structures in an inhomogeneous fluid; Simulation of hydraulic fracturing and transport of multi-component fluid; Mathematical and applied hemodynamics.**

Recent publications (2015)

Richard G., Gavrilyuk S. *Modelling turbulence generation in solitary waves on shear ...* // **J. Fluid Mech.** V. 773. (IF=2.294)

Gavrilyuk S. et al. *A kinematic conservation law in free surface flow* // **Nonlinearity.** V. 28. (IF=1.200)

Chesnokov A., Pavlov M. *The Russo–Smereka kinetic equation: conservation laws ...* // **Physica D.** V. 303. (IF=1.829)

Golovin S. et al. *Hydraulic fracture numerical model free of ...* // **Int. J. Rock. Mech. Min. Sci.** V. 76. (IF=1.424)

Shutov A. et al. *Ductile damage model for metal forming simulations ...* // **Int. J. Plasticity.** V. 71. (IF=5.971)

Project: Nonlinear wave processes in complex hydrodynamics systems (Russian Science Foundation, grant №15-11-20013).

Two visits of Prof. S.L. Gavrilyuk to NSU: December 2014, March 2015 (two courses were given: Mathematical Models of Multiphase Media and Mathematical Modeling of Two-Speed Mixtures of Compressible Fluids; seminars).

Workshops organization: “Analytical and Numerical Methods of Long-Wave Hydrodynamics”, March 2–3, 2015 (more than 25 participant from Moscow, N-sk, Rome); “Analytical Methods in Continuum Mechanics and Applications”, April 22, 2015.

Participation in International Conferences: 30th International Workshop on Water Waves and Floating Bodies, April 2015, Bristol, UK (Kostikov V.); European Geosciences Union General Assembly, April 2015, Vienna, Austria (Makarenko N.)

Collaborations: Schlumberger, Rosneft (Modeling of hydraulic fractures; Golovin, Baikin, Chesnokov, Liapidevskii); Meshalkin Research Institute, International Tomography Center (Cerebral hemodynamics; Chupakhin, Cherevko, Khe, Yanchenko); Shirshov Institute of Oceanology (Deep-water measurements in the Atlantic Ocean; Makarenko, Kostikov).