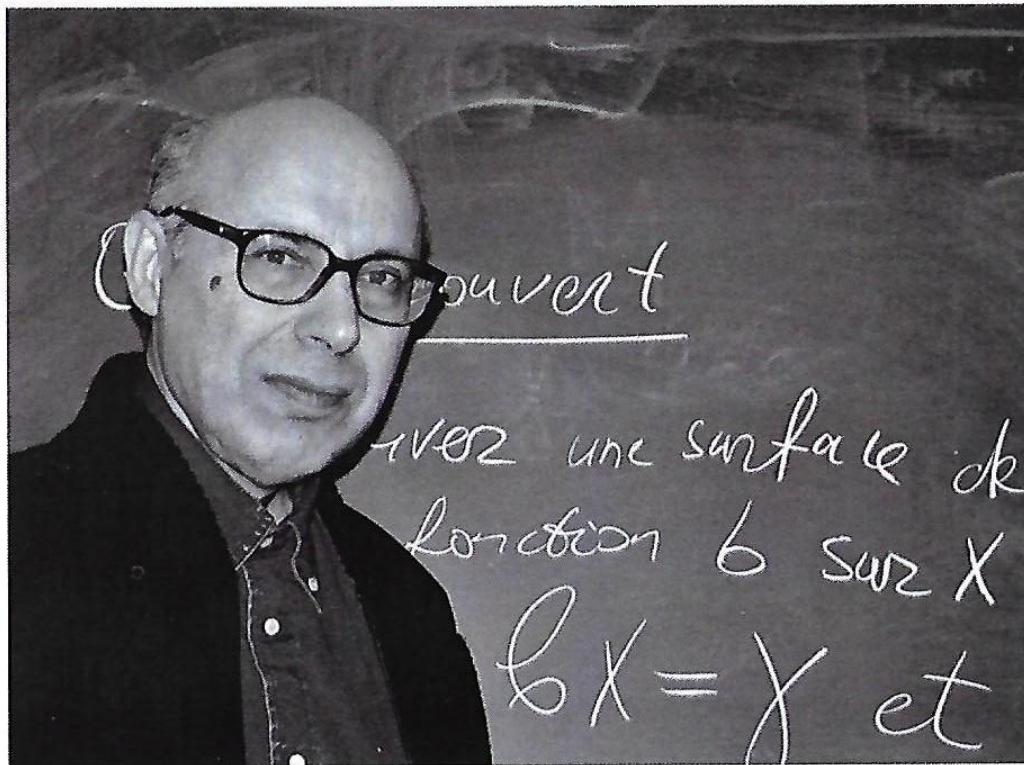


QUASILINEAR EQUATIONS, INVERSE PROBLEMS AND THEIR APPLICATIONS

12 Sept. 2016 - 15 Sept. 2016



Conference handbook and proceedings



Gennadi Markovich Henkin

1942 - 2016

Complex and Functional Analysis &
Mathematical Economics & Quasilinear
Equations & Integral Geometry
& Inverse Problems

Central Economics and Mathematics Institute, Russia &
Université de Pierre et Marie Curie, France &
Moscow Institute of Physics and Technology, Russia

Conference program

Monday, September 12th. Phystech.Bio

Section «Nonlinear PDEs and dynamical systems»

Chair: A. Tumanov

14:30: N. S. Petrosyan (MSTU «STANKIN», Russia)

«Asymptotics of solutions of the Cauchy problem for a quasilinear first order equation with several space variables»

We investigate the convergence as time increases indefinitely of the solutions of the Cauchy problem for a scalar quasilinear first-order conservation law with several space variables to the solutions of the one-dimensional problem of decay of discontinuity (the Riemann problem).

15:05: A. V. Romanov (Higher School of Economics, Russia)

«On normally hyperbolic inertial manifolds of evolutionary equations»

For 3D reaction-diffusion equations, we study the problem of existence or nonexistence of an inertial manifold that is normally hyperbolic or absolutely normally hyperbolic. We present a system of two coupled equations with a cubic nonlinearity which does not admit a normally hyperbolic inertial manifold. An example separating the classes of such equations admitting an inertial manifold and a normally hyperbolic inertial manifold is constructed. Similar questions concerning both absolutely normally hyperbolic inertial manifolds and more general evolutionary equations are discussed.

15:40: Coffee break

16:00: V. V. Vedenyapin, M. A. Negmatov, N. N. Fimin (Keldysh Institute of Applied Mathematics, Russia)

«Hydrodynamics and kinetics of Vlasov and Liouville equations»

Hydrodynamic ansatz for Liouville equation and Hamilton-Jacobi equation. Hamilton-Jacobi method in nonhamiltonian situation. Hydrodynamic ansatz for Vlasov equation and Godunov double divergent form of magnetohydrodynamics. On Arnold-Kozlov Topology of SteadyState Solutions of Hydrodynamic and Vortex Consequences of the Vlasov Equation.

16:35: A. V. Podoroga, I. V. Tikhonov (Moscow State University, Russia)

«On stability of special solutions for quasi-linear equations of traffic flow»

We discuss a quasi-linear equation of traffic flow with fundamental diagram of Nagel-Schreckenberg. For this equation a Cauchy problem on the ring road is considered. We present a new result on the stability of solutions for this problem.

17:10: V. S. Dryuma (Institute of Mathematics and Computer Science, Moldova)

«On integration of the equations of flows of incompressible liquids»

The Navier-Stokes and the Euler systems of equations are considered. An examples of non-singular solutions are constructed and their properties are discussed.

17:45 V. Chistyakov (National Research University of ITMO)

«On rotational dynamics of a rigid body around non-principal central axis under combined friction acting»

The dynamics is studying for rigid body rotating around fixed axis Oz being central but not principal. Therefore the inertial torques M_x and M_y arose depending both on mass geometry J_{xz} , J_{yz} and on angular velocity ω and acceleration ϵ . Dry friction acting on axis's supports with coefficient δ leads to that the value of ϵ serves as the reason and result of the motion simultaneously. There were integrated numerically and/or analytically the dynamical equations of free and forced motion including rotational harmonic and inharmonic oscillations too. The results obtained are comparing with those following from the standard linear equations.

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