



PROF. Lidia R. R. Palese

SCIENTIFIC CURRICULUM VITAE:

In the framework of mathematical models which govern the classical thermodynamics of linear viscous fluids and binary mixtures, I studied stability problems and linearization principles, with variational techniques or methods of Hilbert spaces theory, Fourier series and direct methods.

Some results are available in the papers cited in bibliography, in which the physical problem is more difficult due to some chemical reactions on the boundary of the domain, which "spoil the symmetry".

In the first book cited in bibliography are determined, with analytical treatment, some stability criteria for fluid flows. Analytical models of hydrodynamic stability theory in dynamical systems theory are reformulated as evolution equations in Banach spaces, to investigate the linearization principle and the energy method in the nonstationary case. Some variants of the non-stationary energy method are presented with some applications to concrete nonlinear convection problems governed by pde's.

The second book deals with mathematical models in biomathematics, emphasizing two fundamental mathematical problems, that is dynamics and bifurcation, first from a theoretical point of view, and then with applications to some concrete models in biomathematics.

Papers

PALESE L., A. GEORGESCU, A linear magnetic Bénard problem with Hall effect. Application of Budyanski-DiPrima method. Trudy Srednevoljckogo Matematicheskogo Obshchestva, Saransk, (Russo), **10**, 1, (2008), 294-303.

GEORGESCU A., L. PALESE, On the nonlinear stability of a binary mixture with chemical surface reactions, Mathematics and its Applications, Annals of Academy of Romanian Scientists, **3**, 1, (2011), 106-115.

GEORGESCU A., L. PALESE, A linearization principle for the stability of the chemical equilibrium of a binary mixture, ROMAI Journal Mathematics and its Applications, **6**, 2, (2010), 131-138.

L. PALESE, On the stability of the rotating Bénard problem. Mathematics and its Applications, Annals of Academy of Romanian Scientists, **1**, 6, (2014), 4-20.

Books

GEORGESCU A., L. PALESE, Stability criteria for fluids flows, Series on Advances in Mathematics for Applied Sciences, -Vol 81, 2010 World Scientific Publishing, Singapore.

GEORGESCU A., L. PALESE, G. RAGUSO, Biomatematica, modelli, dinamica e biforcazione, Cacucci Editore 2009 Bari.

PROFESSOR'S OFFICE HOUR:

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