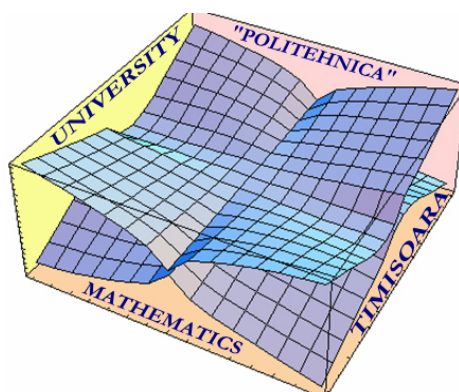


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Researches in *MATHEMATICS and APPLIED MATHEMATICS*

RESEARCH FIELDS

- *Functional equations. Functional equations inequalities.*
- *Frame and Wavelet Analysis. Hyers-Ulam stability.*
- *Analysis on manifolds pseudo-Riemannian.*
- *Stochastic analysis, stochastic differential equations, stochastic modeling.*
- *Qualitative Theory of Functional Equation.*
- *Operator Theory.*
- *Dynamical systems and applications.*
- *Fluid mechanics.*
- *Calculus of variations and optimal control. Program Analysis and Verification.*
- *Ordinary differential equations.*
- *Theory of α -categories.*
- *Functional analysis.*
- *Numerical methods, asymptotic methods.*
- *Numerical results with FreeFem++ (modelling and numerical simulations).*
- *Differential equations, numerical solutions, stability.*
- *Optimal control, collocation-type methods.*
- *Spectral methods in Hydrodynamic stability.*
- *Ricci flow. Spaces of Riemannian Metrics.*
- *GEOMETRY-Mechanical geometry*

RESEARCH GRANTS

1. Romanian Academy Research Grant, theme 3-Mathematical Sciences, No. 268/ 2007 (2008-2nd year) - *The stability and convergence with respect to global monotone dynamical systems with applications to the study of the equations in transition regime which appear in the optimization of an ecological energetic micro-system made from solar batteries, wind*

turbines and hydro-turbines (Stabilitate si convergenta relativ la sistemele dinamice global monotone cu aplicatii la studiul ecuatiilor de regim tranzitoriu ce intervin in optimizarea unui microsistem ecologic energetic format din baterii solare, turbine eoliene si turbine hidro) (C. Bota).

2. S.C. ETA Automatizări Industriale Timișoara, No. 145/13.10.2008 -*Stochastic models for analysis and prediction in automotive industry (Modele stochastice de analiză și predicție aplicate in automatizarea industrială)* (I. Golet).

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PERSPECTIVES

- Stability in so_4 and so_3 . Numerical stability in mechanics geometry.
- New results on frames, fusion frames and Hyers-Ulam stability.
- Probabilistic applications to control statistic of quality and forecasting.
- Global dynamical systems on topological manifolds.
- Numerical Methods and Engineering Applications with Maple.
- Numerical Methods in Mathematics Financiar with Matlab.
- Calitativ studies of some dynamic systems using semigroup of operators.
- We intend to use the fixed points methods to obtain new results of stability for various types of functional equations

- Bifurcation theory.
- Deformation Geometry of material structure.
- Study the forward-backward stochastic differential equations and their applications to finance modelling
- Stochastic resonance phenomena and control of some electronics circuit s
- Participate at the conference and publish books.

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