

Andrei Ludu

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Ph.D. 1989 Bucharest University, and Institute for Atomic Physics, Bucharest.

On sabbatical leave 2008: Dept. Physics, CMT Group (<http://www.ua.ac.be/main.aspx?c=CMT>)
University Antwerp, Belgium, Max Planck Institute for Complex Systems, Dresden, and Niels Bohr Institute, Copenhagen.

Faculty Positions: Assistant⇒Associate Professor, Bucharest University (1985-1996); Adjunct Assoc. Prof., Our Lady of The Lake College, Baton Rouge, LA (1998); Assistant⇒Associate Professor, Dept. Chemistry and Physics, NSU (2001-present).Northwestern State University.

Visiting Appointments:

J. W. Goethe University, Institute for Theoretical Physics, Frankfurt/Main; GSI,-Darmstadt;
Justus Liebig University, Institute for Theoretical Physics, Giessen; Abo Akademi, Turku; ULB Brussels; T-8 and CNLS, Los Alamos Natl. Lab.; ICTP, Trieste; Kurceatov Institute of Atomic Physics, Moscow.

Grants:

- NSU: NEF PD 07-08 R1-005, \$ 5000 (2007-8) PI.
- NSU: PD 04-05 R1-007, \$ 2400 (2004-5)
- Board of Regents R & D: LEQSF-(2005-07) RD-A-45, \$100,000 (Co-PI).
- Louisiana Board of Regents TGEF grant, October, 2003.
- National Science Foundation Grant No. DMS-0306887 2003.
- Louisiana Board of Regents grant 2002-2003 \$ 20,000 (PI)
- National Science Foundation Grant PHY-0140274 2003-5 (PI)
- LaSIP Grant (Board of Regents, Louisiana) No. 1214NWSTU \$ 87,000 (PI)
- Procter & Gamble Co. 1996, 2006-7 (PI)
- Fellowship Kern Forschungs Zentrum Karlsruhe; DAAD; GSI 1990-1996

Memberships: APS, AAAS, IAMP, affiliate IoP, NYAS, Who's Who of Professionals, ΑΛΔ, ΦΚΦ, Co-Director (Co-Founder) IDEAS Program at NSU (<http://scitech.nsula.edu/IDEAS/faculty.htm>),

The Mildred Hart Bailey Research Award 2003, member in Editorial Board of Rom. J. Phys. and Int. J. Comp. Math. Num. Sim.

Fields of research:

Large amplitude collective modes in compact fluid models, nonlinear fluid dynamics, solitons, mathematical physics, quantum groups, exotic radioactivity, hot and dense plasmas, wavelets, bio-mathematics (swimming) and mesoscopic superconductivity.

Teaching Experience:

Bucharest University, Our Lady of The Lake College and LSU, Baton Rouge, LA, NSU, Natchitoches, LA. Teaching levels 1000-8000, supervising 18 BS/MS theses and 5 PhD theses.

Conferences organized (selections):

- 1st through 5th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, 1999-2007, UGA, Athens, GA. <http://www.cs.uga.edu/~thiab/waves2005.html>
- 6th International Wigner Symposium, 16-22 August 1999, Istanbul.
- 7th International Wigner Symposium, July 24-29, 2000, University of Maryland.
- *Integral Transforms* session Joint AMS Conference, January 2001 New Orleans.
- General Chair 1st ISIS International Symposium on Interdisciplinary Science, NSU Natchitoches, LA, October 6-8, 2004 www.scitech.edu/IDEAS (AIP Conference Proceedings 755, Melville NY, 2005).

Book: *Nonlinear Waves and Solitons on Contours and Closed Surfaces*, Springer Series in Synergetics (Springer-Verlag, Heidelberg, 2007) 475 pages. ISBN: 978-3-540-72872-6 <http://www.springer.com/physics/book/978-3-540-72872-6>

Selected papers

- Internally generated nonlinear waves in filament bundles, *Math. Comp. Sim.* **74** (2007) 179-189.
- Solitons and Antisolitons on Bounded Surfaces, *Mathematics and Computer in Simulation*, **69**, 3-4 (2005) 389-399.
- Analysis and Classification of Nonlinear Dispersive Evolution Equations in The Potential Representation, *J. Phys. A: Math. Gen.*, **35** (2002) 6075-6090.
- Laplace Transform of Spherical Bessel Functions, *Physica Scripta* **65** (2002) 369-372.
- Soliton Excitations as Emitted Clusters on Nuclear Surfaces, *J. Phys. G: Nucl. Part. Phys.*, **27** 3 (2001) 63-74.

- Similarity Analysis of Nonlinear Equations and Bases of Finite Wavelength Solitons, *International J. Modern Phys. E*, **9** (2000) 263-278.
- Nonlinear Modes of Liquid Drops as Solitary Waves, *Phys. Rev. Lett.* **80** (1998) 2125-2128.
- Wavelets and Quantum Algebras, *J. Math. Phys.* **39** (1998) 2346-2361.
- Nonlinear Liquid Drop Model. Cnoidal Waves, *J. Phys. G: Nucl. Part. Phys.* **23** (1997) 343-364.
- A Nonlinear Deformed $su(2)$ Algebra with a Two-color Quasitriangular Hopf Structure, *J. Math. Phys.* **38** (1997) 369-386.
- Generalization KdV Equation for Fluid Dynamics and Quantum Algebras, *Foundations of Physics* **26**, 5 (1996) 665-678.
- $\alpha+28^{Si}$ Cluster Structure as Solitons on The Nuclear Surface, *J. Phys. G: Nucl. Part.* **21** (1995) L41-L47.
- Quantum Deformation Algebra Studied as an Analytical Equivalent of s, d Interacting Boson Model: Energy Spectra, *Phys. Rev. C* **48** 2 (1993) 593-597.
- A Generalization of The Deformed Algebra of Quantum Group $SU_q(2)$ for Hopf Algebra, *J. Math. Phys.* **34** 11 (1993) 5367-5375.
- Dynamical Symmetry Breaking of $SU(2)$ Model and The Quantum Group $SU_q(2)$, *J. Phys. G: Nucl. Part. Phys.* **18** (1992) L73-L82.
- New Large Amplitude Collective Motion in Nuclei, *Int. J. Mod. Phys. E* **1**, 1 (1992) 169-200.
- A Group Theoretical Approach to the Magneto Hydrodynamic Equations and Group Invariant Solutions, *Contrib. Plasma Phys.* **30**, 4 (1990) 449-459.

Patents: 78136/1974, 70774/1978, Bucharest.