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## Curriculum Vitae IOAN GROSU

**Date of Birth** 27 August 1945  
**Place of Birth** Armasoaia / Pungesti / Vaslui / Romania  
**Marital Status** Divorced  
**Citizenship & Nationality** Romanian

### Studies

1981 PhD in Physics  
1968-72 Faculty of Mathematics  
1963-68 Faculty of Physics

### Experience

1968-73 research worker  
1974-79 head of the group of theoretical physics, Institutul de Fizica Iasi  
1979-90 assistant professor, lecturer, Physics Department, Institutul Politehnic Iasi  
1990-93, 1995-97 associate professor, Physics Department, Univ. “Al. I. Cuza” Iasi  
1993-95 Fulbright Research Associate, Beckman Institute for Advanced Science and Technology, Univ. of Illinois at Urbana-Champaign, Illinois, US  
1997 Feb-present Department of Exact Sciences, Faculty of Medical Bioengineering, Universitatea de Medicina si Farmacie”Gr. T. Popa” Iasi

### Courses taught

1979-... Laboratory Physics  
1986-87 Optics  
1987-90 Molecular Physics, Theoretical Physics  
1990-91 General Physics, Numerical Methods in Physics  
1991-93 General Physics, Nonlinear Processes in Plasma  
1995-97 General Physics, Synergetics  
1997-... General Physics, Applied Optics, Nonlinear Dynamics

### Awards

- Academy Award 1991 for the book: G. Bourceanu, I. Grosu, C. Beldie, **Evolution and Selforganization in Systems far from Equilibrium**, Ed. Tehnica, Bucharest, 1989.

- Fulbright Grant 1993

**Professional Societies**

- Groupe International de Recherche sur l'Enseignement de la Physique (GIREP)
- European Physical Society.

## Publications

25. I. Grosu, "General Coupling for Synchronization of 3 Identical Oscillators"  
Int. J. of Bifurcation and Chaos, accepted, IJBC
24. A. I. Lerescu, S. Oancea, I. Grosu, "Collection of Mutually Synchronized Chaotic Systems"  
Physics Letters A 352, p. 222-226, 2006
23. A. I. Lerescu, N. Constandache, S. Oancea and I. Grosu, "Collection of master-slave synchronized chaotic systems", Chaos, Solitons and Fractals 22(3), p. 599-604, Nov. 2004
22. I. Grosu, "Parameter Estimation from time series using OPCL Autosynchronization"  
Int. J. of Bifurcation and Chaos 14(6), 2133-2141, 2004
21. I. Grosu, "Stabilization of Arbitrary Unstable Periodic Orbits of Nonlinear Systems"  
Dynamics of Continuous, Discrete and Impulsive Systems Ser. B, v. 10(6), p. 853-863, Dec. 2003
20. V. Dragoi, I. Grosu, "Synchronization of Locally Coupled neural Oscillators", *Neural Processing Letters*, **7**, 199-210, 1998
19. I. Grosu, "Robust Synchronization", *Phys. Rev. E* **56**, 3709-3712, 1997
18. E. Atlee Jackson, I. Grosu, "Toward Experimental Implementation of Migration Control", *Int. J. on Bifurcation and Chaos*, **5**, 1767-72, 1995
17. E. Atlee Jackson, I. Grosu, "An Open-Plus-Closed-Loop (OPCL) Control of Complex Dynamic Systems", *Physica D*, **85**, 1-9, 1995
16. I. Grosu, "A Simple but Tricky Experiment", *Physics Education* (Bristol, UK), **29**, 184, 1994
15. V. Zoita, C. Ciobotariu, I. Grosu, V. Stancu, "Microinstabilities in Collapse Phase of a Plasma Focus Device", *Buletin Inst. Politehnic Iasi*, **35**, 85, 1989
14. C. Beldie, I. Grosu, M. Bourceanu, G. Bourceanu, "Periodically Driven Briggs-Raucher Reaction", *Revue Roumanie de Chimie*, **32**, 725, 1989
13. C. Ciobotariu, V. Stancu, I. Grosu, I. Burdujan, "Double Layer Formation and Microinstabilities in the Implosion Phase of a Plasma Focus Device Discharge", *An. St. Univ. Iasi*, **30**, 235, 1989
12. Bourceanu, G., Beldie, C., Grosu, I., Bourceanu, M., "Evolution, Fluctuation and Entropy", *Memories of Romanian Academy IV*, **9**, 1, 1986
11. Grosu, I., Ursu, D., "Linear and Nonlinear Oscillations", *European Journal of Physics*, **7**, 91, 1986
10. Olaru, R., Cotae, C., Grosu, I., Calugaru, Gh., "Investigation of an Inclination Transducer", *Journal of Magnetic Materials*, **39**, 162, 1983
09. Grosu, I., Ursu, D., "Simple Apparatus for Obtaining Parametric Resonance", *American Journal of Physics*, **50**, 561, 1982
08. Grosu, I., "An Improved Snow-plow Model for Plasma Acceleration in a Coaxial Geometry", *Beitrag aus der Plasmaphysik* (Berlin), **22**, 6, 1981
07. Grosu, I., "On the Equation of the Electrical Circuit of the Plasma Focus Device", *Revue Roumanie de Physique*, **26**, 307, 1981
06. Grosu, I., Zoita, V., "Study of the Plasma Sheath Acceleration Phase in a Plasma Focus Device means of a Two-dimensional Snow-plow Model", *Revue Roumanie de Physique*, **23**, 1023, 1980

05. Grosu, I., Zoler, D., Ruscanu, D., Gazi, R., "Plasma Column Compression in the Presence of a Inner Coaxial Azimuthal Magnetic Field", *Revue Roumanie de Physique*, **25**, 1023, 1980
04. Zoler, D., Grosu, I., Laur, F., Ruscanu, D., Gazi, R., "Selfcompression of a Plasma Column of Finite Conductivity in an External Magnetic Field", *Nuclear Fusion* (Vienna), **15**, 901, 1975
03. Zoler, D., Grosu, I., Laur, F., Gazi, R., Ruscanu, D., "Compression of a Plasma Column of Infinite Conductivity Situated in an External Magnetic Field", *Le Journal de Physique* (Paris), **36**, 45, 1975
02. Deutsch, R., Grosu, I., Zoler, D., "Propagation of Magnetoacoustic Waves inside Magnetic Plasma Traps", *Nuclear Fusion* (Vienna), **11**, 57, 1971
01. Deutsch, R. V., Grosu, I., "A Study of the Propagation of a Fast Magnetoacoustic Waves in a Plasma Column through which a Current of Constant Density Passes by Means of Geometrical Optical Techniques", *Revue Roumanie de Physique*, **1**, 6, 1970

### Book

- G. Bourceanu, I. Grosu, C. Beldie, *Evolution and Selforganization in Systems far from Equilibrium*, Ed. Tehnica, Bucharest, 1989

### Patents

1. I. Grosu, Transducer of vibrations, 51 200, Romania
2. I. Grosu, Transducer of vibrations, 91813, Romania
3. I. Grosu, Didactic device for obtaining Larmor precession, 91 857, Romania
4. R. Olaru, I. Grosu, C. Cotae, Gh. Calugaru, Transducer of inclination, 97 701, Romania
5. I. Grosu, R. Olaru, I. Oancea, Transducer of vibrations, 99 611, Romania
6. I. Grosu, R. Badescu, I. Oancea, Transducer of vibrations, 100 330, Romania
7. R. Olaru, I. Grosu, S. Amarandei, Transducer of denivelation, 100 781, Romania

### Recent Conferences 2000+2001

- I.Grosu "Robust Synchronization"  
Symposium on Synchronization of Chaotic Systems, 3-5 July 2000, Trieste, Italy
- I.Grosu "From linear to nonlinear or chaotic behavior"  
European Conference on Physics Teaching in Engineering Education"  
June 17, 2000, Budapest, p.87
- I.Grosu, D. Arotaritei, R. Ciorap  
"A New Nonlinear Control Method .Application for Inverted Pendulum"  
Conference Control 2000, Guimaraes, Portugal, Oct. 6-8, 2000, paper A6 on CD
- L.Lerescu, N. Costandache, I. Grosu  
"OPCL dynamic drug administration"  
The National Conference of Romanian Society of Pure and Applied Biophysics  
24-29 Sept, 2001, Sovata, Reviste de medicina si Farmacie, UMF Tg. Mures, Vol. 47,  
Nr. 3, p33, 2001
- I.Grosu "Driving a system to a linear or nonlinear or chaotic behavior"  
National Physics Conference, Iasi, 2001, 18-20 Oct., p.18
- I.Grosu "Controlling any type of chaotic system"  
National Physics Conference, Iasi, 2001, 18-20 Oct., p.28

- I.Grosu,D.Arotaritei,C.Corduneanu  
 "Control of Chaotic Population Dynamics"  
 IFAC Conference Large Scale System ,Bucharest ,July 18-20,2001, p. 371
- I.Ai.Creanga,D.E.Creanga,C.Stan,I.Grosu,I.I.Bara  
 "Evidence of nonlinear dynamics in forestry ecosystems"  
 IFAC Conference Large Scale System ,Bucharest ,July 18-20,2001, p. 351
- Al.I. Lerescu,I.Grosu "Controlling chaotic ecological dynamics"  
 IFAC Workshop on Modeling and Control in Environmental Issues,Yokohama,  
 Japan,Aug. 22-23,2001, p.155
- Al. I. Lerescu, N.Constandache,I.Grosu "A Collection of the Simplest Synchronized Chaotic Systems"  
 Applied Nonlinear Dynamics ,Thessaloniki,Greece,27-30 Aug.,2001,p.86
- I.Grosu, Al. I. Lerescu "OPCL based control of the unstable state of the hysteresys loop"  
 Applied Nonlinear Dynamics ,Thessaloniki,Greece,27-30 Aug.,2001,p.68
- Al. I. Lerescu, I.Grosu"Numerical studirs of the nonlinear properties of ferroelectric semiconductors"  
 Applied Nonlinear Dynamics ,Thessaloniki,Greece,27-30 Aug.,2001,p.30
- I.Grosu"Full identification of a driven Duffing system by OPCL Autosynchronization"  
 International Workshop on Modeling and Identification of Continuous Dynamical Systems"  
 Sept. 23-26,2001,Frieburg,Germany, p.16

## Conferences 2002

1	I.Grosu,"Some Comments on a General Method of Synchronization" ECIT'2002,Iasi,Romania, July 17-20,2002 on CD
2	I.Grosu,"Controlling Arbitrary Chaotic System" ECIT'2002,Iasi,Romania, July 17-20,2002, on CD
3	M.Negoita,R.Ciorap,F.Topoliceanu,I.Grosu,"Estimation of Model Parametrs from Chaotic Time Series" ECIT'2002,Iasi,Romania, July 17-20,2002, on CD
4	C.Cris,I.Grosu,"A Control Method for Interacting Tumotal and Healthy Tissue" Dynamics Days,Heidelberg,Germany,July 15-19,2002,p.49
5.	A.I.Lerescu,I.Grosu,"A Collection of the Simplest Synchronized Chaotic Systems " Dynamics Days,Heidelberg,Germany,July 15-19,2002,p.167
6	A.I.Lerescu,I.Grosu,"Application of OPCL for the Control of population and ecological dynamics" Dynamics Days,Heidelberg,Germany,July 15-19,2002,p.67
7	I.Grosu,"Parameter Estimation using OPCL Autosynchronization" Dynamics Days,Heidelberg,Germany, July 15-19,2002,p.132
8	L. Slabu, M. Negoita, I.Grosu, "Modern tool for investigation of heart rate data", "2nd European Medical and Biological Engineering Conference EMBEC'02", Vienna, 2002, Vol.II, p 1284-1285 ISSN 1680-0737
9	M. Negoita, L. Slabu, I. Grosu, F.Topoliceanu, R.Ciorap, "Use of Recurrence Quantification Analysis in the analysis of EMG signals", "2nd European Medical and Biological Engineering Conference EMBEC'02", Vienna, 2002, Vol.I, p 542-543 ,ISSN 1680-0737

Conferences 2003:

- 1.L.Slabu, C.Coorduneanu, L.Lerescu, I.Grosu,"Identifying the Coding Regions in DNA Sequences using DFA Method",The First South-East European Symposium on Interdisciplinary Approaches in Fractal Analysis ,May 7-10,2003, p.139-143, Bucharest,Romania,ISBN: 973-652-778-6
- 2.I.Grosu , "Master-Slave Synchronization and Control of Chaotic Sprott Circuits", Nonlinear Dynamics in Electronic Systems NDES 2003,May 18-22<sup>nd</sup>, 2003, p.93-96, Scoul,Switzerland.,ISBN: 3-03708-004-3
- 3.I.Grosu, D.Ursu,"Nonlinear Dynamics: A Need in Engineering Education", 2<sup>nd</sup> Balkan Region Conference on Engineering Education, conference Proceedings,16-19 Sept. 2003, Sibiu,Romania, p.67-70, ISBN: 973-651-673-3

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- 4.M.Negoita,D.Vicoveanu,N.Constandache,I.Grosu , "QRS Detection Algorithm " Proc. of the 1<sup>st</sup> "MEDINF International Conference on Medical Informatics & Engineering " MEDINF 2003, Oct. 9-11,2003,Craiova,Romania , p.184-187 , ISSN 1454-6876
- 5.L.Slabu, D. Vicoveanu, N. Constandache, I.Grosu , "Nonlinear Analysis of Cardiological Signals" Proc. of the 1<sup>st</sup> "MEDINF International Conference on Medical Informatics & Engineering " MEDINF 2003, Oct. 9-11,2003,Craiova,Romania , p.184-187 , ISSN 1454-6876

Conferences 2004

- 1.I.Grosu "Nonlinear Dynamics: A Need in Biomedical Engineering Education" ,BIOSIGNAL 2004, Brno, Czech Republic ,June 23-25,2004
  - 2.I.Grosu , "New Parameter Estimation Method with Possible Applications in Biochemical Pathways", International Conference of Systems Biology :From Biosciences to Medicine",Heidelberg, Oct. 9-13,2004.
  3. 3<sup>rd</sup> International School Topics in Nonlinear Dynamics ;Discrete Dynamical Systems and Applications, Urbino,Italy,July 7-9, 2004
  - 4.International Workshop :Nonlinear Dynamics and Complexity in Information and Communication Technology, Bologna ,Italy ,September 6-8 ,2004
- \*\*\*\*2005\*\*\*\*
- I.Grosu "New Parameter Estimation Method with possible application in Systems Biology" 1<sup>st</sup> FEBS Advanced Lecture Course : **SYSTEMS BIOLOGY: From Molecules & Modeling to Cells** ,Gosau ,Austria, March 12-18,2005, <http://www.febssysbio.net>
  - A.V.Oancea,V.Focsanianu,A.Patrulescu,I.Grosu,"Synchronization Based Parameter Estimation Method used in Systems Biology and Bioinformatics",GSP 2005,International Workshop on Genomic Signal Processing ,11-13 July 2005, Bucharest,Romania
  - I.Grosu "A Didactic Method of Synchronization" 4<sup>th</sup> International School : Topics in Nonlinear Dynamics ,SYNCHRONIZATION IN NONLINEAR SYSTEMS AND COMPLEX NETWORKS,Florence,Italy,Sept. 8-10,2005
  - I.Grosu,"General Coupling for mutual synchronization of 3 identical oscillators" NDES 2005,13<sup>th</sup> Int. IEEE Workshop on Nonlinear Dynamics of Electronic Systems ,Sept. 18-22,2005,Potsdam,Germany