

# CURRICULUM VITAE

## Romulus Breban

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### CONTACT INFORMATION:

*Office:*

PH2

1100 Glendon Ave.,

Los Angeles, CA 90024.

(310) 794 8650, (310) 794 8653 (Fax)

Electronic Mail: *breban@ucla.edu*

*Home:*

1546 South Beverly Glen Blvd.,

Los Angeles, CA 90024.

(310) 557 9832

### EDUCATION:

1999-2003: Ph.D. Physics, University of Maryland, College Park, MD.

1997-1999: M.S. Physics, University of Pittsburgh, Pittsburgh, PA.

1991-1996: B.S. Physics, University of Bucharest, Romania.

### HONORS AND AWARDS:

1995-1996: EMSPS-TEMPUS Scholarship at Ruhr Universität EP V, Bochum, Germany.

1992-1995: Merit Scholarship of the University of Bucharest, Bucharest-Magurele, Romania.

1993: Second Prize of the Annual Physics Student Conference of the University of Bucharest, Bucharest-Magurele, Spring 1993.

1991-1992: University of Bucharest Fellowship I, Bucharest-Magurele, Romania.

### WORK EXPERIENCE:

09/2003-present: Postgraduate Researcher (Step 9), Department of Biomathematics, David Geffen School of Medicine, University of California, Los Angeles, CA.

06/1998-08/1998: Network Administrator Assistant, University of Pittsburgh, Pittsburgh, PA.

02/1997-06/1997: Research Associate, National Institute for Laser and Plasma Physics, Bucharest-Magurele, Romania.

## TEACHING ASSISTANT EXPERIENCE:

Semester	Course	Type of Teaching	Course Instructor
Spring 2001	PHYS 262A	Laboratory	Abolhasan Jawahery <sup>1</sup>
Fall 2000	PHYS 262A	Laboratory	Abolhasan Jawahery <sup>1</sup>
Summer 2000	PHYS 121	Recitation and Lab	Kathleen Restorff <sup>1</sup>
Spring 2000	PHYS 121	Recitation and Lab	Jung Ho Paik <sup>1</sup>
Fall 1999	PHYS 121	Recitation and Lab	Satindar Baghat <sup>1</sup> , Denis Drew <sup>1</sup>
Spring 1999	PHYS 0110	Recitation	Chandralekha Singh <sup>2</sup>
Fall 1998	PHYS 0577	Honor Laboratory	Rainer Johnsen <sup>2</sup>
Fall 1998	PHYS 2556 <sup>†</sup>	Grading	Jeffrey Winicour <sup>2</sup>
Spring 1998	PHYS 0577	Honor Laboratory	Irving Lowe <sup>2</sup>
Spring 1998	PHYS 2555 <sup>†</sup>	Grading	Jeffrey Winicour <sup>2</sup>
Fall 1997	PHYS 0368	Optics Laboratory	David Snoke <sup>2</sup>

<sup>1</sup> at University of Maryland

<sup>2</sup> at Pittsburgh University

<sup>†</sup> graduate course

## INVITED TALKS:

SIAM Conference on Applications of Dynamical Systems, MiniSymposium of ‘Phase Synchronization of Chaotic Systems: Theory and Applications’, Snowbird, UT, May 2003.

## CONTRIBUTED TALKS:

- Applied Dynamics Seminar, University of Maryland, College Park, MD, Spring 2003.
- Dynamics Days, Tempe, AZ, January 2003.
- Applied Dynamics Seminar, University of Maryland, College Park, MD, Fall 2001.
- The Annual Physics Student Conference of the University of Bucharest, Bucharest-Magurele, Spring 1993.

## POSTER PAPERS:

R. Breban and E. Ott, *Phase synchronization of chaotic attractors in the presence of two competing periodic signals*, Dynamics Days, Baltimore, MD, January 2002.

## **PUBLICATIONS:**

1. D.J. DeShazer, R. Breban, E. Ott, and R. Roy, *Phase Synchronization in a Modulated Chaotic Laser Array*, accepted for publication in the International Journal of Bifurcation and Chaos.
2. R. Breban, H.E. Nusse, and E. Ott, *Scaling Properties of Saddle-Node Bifurcations on Fractal Basin Boundaries*, Phys. Rev. E **68**(6), 066213 (2003).
3. R. Breban, H.E. Nusse, and E. Ott, *Lack of Predictability in Dynamical Systems with Drift: Scaling of Indeterminate Saddle-Node Bifurcations*, Phys. Lett. A **319**(1-2), 79-84 (2003).
4. R. Breban, *Phase Synchronization of Chaotic Attractors With Prescribed Periodic Signals*, Phys. Rev. E **68**(4), 047201 (2003).
5. R. Breban and E. Ott, *Phase Synchronization of Chaotic Attractors in the Presence of Two Competing Periodic Signals*, Phys. Rev. E **65**(5), 056219 (2002).
6. D.J. DeShazer, R. Breban, E. Ott, and R. Roy, *Detecting Phase Synchronization in a Chaotic Laser Array*, Phys. Rev. Lett. **87**(4), 044101 (2001).
7. G. Musa, G. Bajeu, A. Salabas, R. Breban, and G.F. Leu, *Oscillations in the Thermionic Cs Diode Considered by Dynamical Systems Point of View*, Rom. Rep. Phys. **48**(7-8), 679-692 (1996).
8. G. Musa, A. Popescu, I. Mustata, G. Bajeu, C.M. Ticos, A. Salabas, R. Breban, and G.F. Leu, *Preliminary Results on the Oscillatory Behaviour of TVA (Thermionic Vacuum Arc) in the Range of Negative Slope of the Current-Voltage Characteristic*, Rom. Rep. Phys. **48**(7-8), 707-715 (1996).

## **PREPRINTS:**

1. R. Breban, *Interpretation of the Five Dimensional Quantum Propagation of a Single Spinless Masless Particle*.

## **Ph.D. THESIS:**

*Low Dimensional Chaos: Phase Synchronization and Indeterminate Bifurcations*, University of Maryland, Summer 2003; Ph.D. Advisor: Prof. Edward Ott.

## OTHER RESEARCH PROJECTS:

- 1999: *Recursive Algebras*, with Prof. G.A.J. Sparling at Department of Mathematics, Pittsburgh University, PA.
- 1998-1999: *Evolution of a Spinning White Hole*, with Prof. J. Winicour at Department of Physics and Astronomy, Pittsburgh University, PA.
- 1995-1996: *Dip Current Analysis in the Rogowski Signals of Micropinch Discharges* (B.S. thesis in experimental hot plasma physics), with Prof. H.-J. Kunze at Ruhr Universität EP V, Bochum, Germany, and Prof. I. Iova at University of Bucharest, Bucharest-Magurele, Romania.
- 1992-1995: Development of research and educational software in Dynamical Systems with Prof. N. Rambu at University of Bucharest, Bucharest-Magurele, Romania.

## PROFESSIONAL SKILLS:

- Linear and Nonlinear Numerical Methods;
- Programming languages: C, Pascal, Fortran;
- Advanced user of: Matlab, Excel, vast computer experience;
- Text editors: Latex, MS Word.

## REFERENCES:

### A) Research

1. **Prof. Sally Blower**,

Department of Biomathematics, David Geffen School of Medicine, University of California, Los Angeles, California 90095, USA; email: *sblower@mednet.ucla.edu*, phone: (310) 794 8911.

2. **Prof. Edward Ott**,

Institute for Research in Electronics and Applied Physics, University of Maryland, College Park, Maryland 20742, USA; email: *eo4@umail.umd.edu*, phone: (301) 405 5033.

3. **Prof. Helena E. Nusse**,

University of Groningen, Department of Econometrics, P.O. Box 800, NL-9700 AV Groningen, The Netherlands; email: *h.e.nusse@eco.rug.nl*;  
Institute of Physical Sciences and Technology, University of Maryland, College Park, Maryland 20742, USA; email: *nusse@ipst.umd.edu*, phone: (301) 405 891.