Germán A. Enciso

CONTACT INFORMATION	Harvard Medical School, Department of Systems Biology 200 Longwood Avenue, Goldenson Building, # 504 Boston MA 02115, USA E-mail: german@hms.harvard.edu website: http://vcp.med.harvard.edu/people/enciso/home.html

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PROFESSIONAL EXPERIENCE

Harvard Systems Biology Department, Boston, MA   **Fall 2007-Present**
  Research Fellow under prof. Jeremy Gunawardena, Director, Virtual Cell Program, Department of Systems Biology, Harvard Medical School

Mathematical Biosciences Institute
Columbus, OH   **2005-2007, and Fall 2007-present**
  Postdoctoral Research Fellow
  Mentors: David Terman, MBI Senior Associate Director, and Winfried Just, Mathematics Department, Ohio University
  Continued postdoctoral appointment, Fall 2007 to present

EDUCATION

Rutgers University, New Brunswick, NJ   **2000-2005**
  Ph.D. in Mathematics, in the field of Mathematical Biology
  Ph.D. Advisor: prof. Eduardo Sontag
  Dissertation title: Monotone Input/Output Systems and Applications to Biological Systems

Johannes Gutenberg Universität, Mainz, Germany   **1997-1998**
  B.S., Mathematics; exchange student

Universidad de los Andes, Bogotá, Colombia   **1995-1997, 1998-2000**
  B.S., Mathematics:
  - GPA: 4.87/5.00 (top 0.1% of class), Magna Cum Laude

LANGUAGES STUDIED

I read, write and speak fluently in **Spanish, German, English** and **French**. I have intermediate knowledge of **Russian** and **Latin**.

JOURNAL PAPERS

L. Ukil, G. Enciso, S. Osmani, Expulsion of the nucleolus to the cytoplasm during *Aspergillus nidulans* mitosis and regulation of its reassembly into G1 nuclei, in preparation

G. Bond, G. Enciso, J. Waalen, E.E. Bond, H. Robins, G. Atzmon, N. Barzilai, T. Kirchhoff, K. Offit, E. Beutler and A. Levine, The impact of a MDM2 single nucleotide polymorphism (SNP309) in human cancers and longevity, in preparation

G. Enciso, A.V. Dmitriev, D. Terman, S.C. Mangel, A mathematical model of signal propagation in the starburst amacrine cell network, preprint available upon request

G. Enciso, W. Just, Large attractors in bi-quadratic cooperative Boolean networks, Part I, Arxiv:0711.2799v1.

W. Just, G. Enciso, Analogues of the Smale and Hirsch Theorems for Cooperative

Boolean and Other Discrete Systems, submitted, Arxiv:0711.0138v2

G. Enciso, On a Smale theorem and nonhomogeneous equilibria in cooperative systems, to appear in the *Proceedings of the American Mathematical Society*

G. Enciso, E. Sontag, Monotone Bifurcation Graphs, to appear in the *Journal of Biological Dynamics*

G. Enciso, M. W. Hirsch, H.L. Smith, Prevalent behavior of strongly order preserving semiflows, to appear in the *Journal of Dynamics and Differential Equations*

G. Enciso, A dichotomy for a class of cyclic delay systems. *Mathematical Biosciences* 208:63-75, 2007

B. DasGupta, G. Enciso, E. Sontag, Y. Zhang, Algorithmic and complexity results for decompositions of biological networks into monotone subsystems, *Lecture Notes in Computer Science 4007*: Experimental Algorithms, pp. 253-264, Springer Verlag, 2006

G. Enciso, H. Smith, E. Sontag, Non-monotone systems decomposable into monotone systems with negative feedback, *Journal of Differential Equations*, 224:205-227, 2006

G. Enciso, E. Sontag, Global attractivity, I/O monotone small-gain theorems, and biological delay systems, *Discrete and Continuous Dynamical Systems* 14:549-578, 2006

G. Enciso, E. Sontag, Monotone systems under positive feedback: multistability and a reduction theorem, *Systems and Control Letters* 51(2):185-202, 2005

G. Enciso, E. Sontag, On the stability of a model of testosterone dynamics, *Journal of Mathematical Biology* 49:627-634, 2004

X. Caicedo, G. Enciso, The Hahn Banach theorem as a choice axiom, *Colombian Academy of Sciences Review*, XXVIII:11-20, 2004 (in Spanish)

PEER-REVIEWED CONFERENCE PAPERS

G. Enciso, On the asymptotic behavior of a cyclic biochemical system with delay, *Proc. of the IEEE Conf. Decision and Control*, San Diego, CA, Dec. 2006

B. DasGupta, G. Enciso, E. Sontag, Y. Zhang, Algorithmic and complexity results for decompositions of biological networks into monotone subsystems, *Fifth International Workshop on Experimental Algorithms*, 2006

G. Enciso, E. Sontag, A remark on multistability for monotone systems II, *Proc. IEEE Conf. Decision and Control*, Seville, Dec. 2005, IEEE Publications, pp. 2957-2962, 2005

G. Enciso, E. Sontag, A remark on multistability for monotone systems, *Proc. IEEE Conf. Decision and Control*, Paradise Island, Bahamas, Dec. 2004, IEEE Publications, pp. 249-254, 2004

OTHER PUBLICATIONS

A. DeWitt, S. Bayram, G. Enciso, H. Fernando, J. Kao, B. Pagnoncelli, D. Schmidt, J.A.S. Hameed, Data to knowledge in pharmaceutical research, *Mathematical Mod-

eling in Industry Workshop Report, IMA, Minneapolis, 2004

G. Enciso, La Fuerza de Elección del Teorema de Hahn-Banach, Undergraduate Thesis, Universidad de los Andes, Bogotá, 2000

PROFESSIONAL SERVICE

Conference Co-Organizer for three different MBI Young Researchers Workshops in Mathematical Biology, Spring 2006, Spring 2007, and Fall 2007, each featuring 35-45 invited participants and several invited speakers.

Tutorial Co-Organizer (with Eduardo Sontag), Mathematical Tools for the Analysis of Biochemical Network Dynamics, International Conference on Systems Biology, Long Beach CA, October 2007

Peer Reviewing I have been a reviewer for the following journals and conferences:

Journal of Theoretical Biology
Journal of Applied Mathematics
Journal of Biological Rhythms
Journal of Biological Systems
Journal of Mathematical Analysis and Applications
Automatica
IEEE Transactions on Automatic Control
International Journal of Control
2007 IEEE Multi-Conference on Systems and Control
2007 American Control Conference
2007 IEEE Conference on Decision and Control
2006 IEEE International Symposium on Intelligent Control
2006 IEEE Conference on Decision and Control

Teaching Activities

VIGRE Working Group in Mathematical Biology (Ohio State University Mathematics Department, Fall Quarter 2006 and Spring Quarter 2007)
Calculus I (Universidad de los Andes)
Linear Algebra (Universidad de los Andes)
Calculus I (Rutgers University)

In addition, I worked as a teaching assistant and as a private tutor at Rutgers University, teaching Precalculus, Calculus I & II, Linear Algebra and Statistics.

Seminar Organizer during the Winter Quarter 2007, of the weekly Postdoctoral Seminar series at MBI.

SCIENTIFIC GRANTS SUBMITTED

NSF Mathematical Biology I submitted a grant as sole PI to the NSF Division of Mathematical Sciences, under the Mathematical Biology program announcement PD 04-7334 due January 2007, entitled *Monotone Systems, with Applications to Oscillatory Dynamics and the Cyanobacterial Clock.* This grant was given positive reviews (Good, Good, Very Good/Good), but it was not considered competitive enough for funding.

AWARDS AND HONORS

Fall 1995 - Beca 40 Años, a competitive award which covered all undergraduate college tuition costs ($10.000)

Spring 1997 - Beca de Excelencia Semestral, award given to a single student among

all basic science mayors. ($1000)

1997-1998 - Mainz-Uniandes student exchange scholarship (EUR 5000)

Fall 1998 - Beca de Excelencia Semestral ($1000)

Spring 2000 - Qualified for the Beca Ramón de Zubiría

Spring 2000 - College GPA was highest among all $\approx$ 4000 college juniors and seniors at time of graduation

Spring 2000 *Magna Cum Laude* undergraduate diploma

Summer 2003 - Dimacs Graduate Student Award ($1000)

Winter 2004 - Dimacs Graduate Student Award ($200)

2003 - 2007 Various competitive travel awards: Banff International Research Station travel support (2004, $300), IMA Industry Workshop support (2004, travel and accommodation), First MBI Young Researchers Workshop in Mathematical Biology support (2005, travel and accommodation), SIAM Travel Award (2006, $500), ARVO International Travel Grant (2005, $700), SIAM Travel Award (2007, $1300)

LECTURES GIVEN   Merrimack Pharmaceuticals, Inc., Boston, MA, August 15th, 2007

6th International Congress on Industrial and Applied Mathematics, Zurich, Switzerland, July 16th 2007

Ohio University Applied and Computational Mathematics Seminar, Athens, OH, May 30th 2007

Oxford Centre for Integrative Systems Biology, March 21st, 2007 (20 minute closed talk)

Florida Atlantic University Mathematics Department, Boca Raton, FL, May 11th, 2007

Ohio State University, Center for Integrative Cancer Biology, March 9th, 2007

Ohio University Mathematics Department, Athens, OH, February 21st, 2007

45th Conference on Decision and Control, San Diego, CA, December 14th, 2006 (20 minute talk)

AMS Central Sectional Meeting, Cincinnati, OH, October 21st, 2006

2006 SIAM Conference on the Life Sciences, Raleigh, NC, August 2nd, 2006

Department of Systems Biology, Harvard University Medical School, Boston, MA, April 12th, 2006

Mathematical Biosciences Institute, Columbus, OH, November 10th, 2005

Rutgers University Mathematics Department, New Brunswick, NJ, July 25th, 2005 (dissertation talk)

2005 SIAM Conference on Control and Its Applications, New Orleans, LA, July 12th, 2005

Drexel University Mathematics Department, Philadelphia, PA, April 19th, 2005

NYU Courant Institute, Mostly Biomathematics Lunch Seminar, New York, NY, February 15th, 2005

Institute for Advanced Study, Systems Biology Seminar Series, Princeton, NJ, January 17th, 2005

Conference on Decision and Control, Bahamas, December 2004 (20 minute talk)

Modeling Cancer Incidence at the MDM2 SNP309 Locus, Institute for Advanced Study, Systems Biology Seminar Series, Princeton, NJ, November 30th, 2004

Princeton University Molecular Biology Department, Princeton, NJ, November 22nd, 2004

Dynamics, Control and Computation in Biochemical Networks, BIRS Banff (Canada) Summer 2004

Graduate Pizza Seminar at Rutgers University: 1-hour talks given on several topics: "'Excentric' Centers of Mass" (measure theory), "Nonstandard Analysis", "The Banach-Tarski Paradox", "Control Theory and Biology", "Infinite Dimensional Beer Glasses" (fixed point theorems)

POSTER PRESENTATIONS	Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May 10th 2007
	Seventh International Conference on Systems Biology, Yokohama, Japan, October 2006
	Poster accepted for the European Conference in Complex Systems, Paris, November 2005 (not attended)
	Sixth International Conference on Systems Biology, Boston, MA, October 2005
	First Young Researchers Workshop in Mathematical Biology, Columbus, OH, March 2005
OTHER CONFERENCES AND WORKSHOPS ATTENDED	Mathematical Modeling in Industry Workshop, Institute for Mathematics and its Applications, Minneapolis, MN, August 9-18th, 2004
	Workshop on Information Processing in the Biological Organism, Sheraton Four Points, Bethesda, Maryland, November 4-5th, 2003
	Biomolecular Networks Conference, Kavli Institute for Theoretical Physics, Santa Barbara, CA, January 10-18th, 2002
	Multiple additional workshops attended at the Mathematical Biosciences Institute and at Dimacs (Rutgers University)
COMPUTER SKILLS	Computer simulations using **Matlab**, including linear semidefinite programming, Systems Biology Markup Language (SBML), coupled compartmental neuronal models, reaction diffusion models using the Matlab PDE Toolbox, and time delay mod-

els. I also use **Maple, XPP, C, Java** and **HTML**.

OTHER INTERESTS   Music: I have given recent choir performances as part of the OSU University choir; I play **piano, guitar** and **violin**.

Sports: I obtained a black belt in taekwon do; currently I enjoy playing racquetball.