

Catalin Georgescu

CURRICULUM VITA

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- Education**
- **State University of New York at Buffalo**, Buffalo, New York.
Ph.D. in Mathematics June, 2004. Dissertation: "The boundary map and the connecting set in Conley Index Theory", advisor Prof. James Reineck.
 - **University of Bucharest**, Bucharest, Romania,
Major in Mathematics & Theoretical Mechanics, June, 1993.

Research Interest **Dynamical Systems.**

- Academic Positions**
- **Associate Professor (tenured)(2010–)**
Department of Mathematical Sciences, University of South Dakota.
 - **Assistant Professor (2004-2010)**
Department of Mathematical Sciences, University of South Dakota.
 - **Lecturer (2002–2004)**
Department of Mathematics, SUNY at Buffalo.
 - **Teaching Assistant (1996–2002)**
Department of Mathematics, SUNY at Buffalo.
 - **Assistant Researcher (1994–1996)**
"Gheorghe Mihoc-Caius Iacob" Institute of Mathematical Statistics and Applied Mathematics of the Romanian Academy.
 - **Assistant Professor (1993–1994)**
University of Petrosani, Romania.

- Visiting Positions**
- General Membership- Institute for Mathematics and its Applications (IMA), University of Minnesota, Fall 2012.
 - "Simion Stoilow" Institute of Mathematics of the Romanian Academy, July 2006.

- Refereed Papers**
- **Fuglede-Kadison Determinants For Operators In The Von Neumann Algebra Of An Equivalence Relation.**
(with Gabriel Picioroaga).
to appear in Proceedings of AMS;
 - **Dynamics of a Population Model Controlling the Spread of Plague in Prairie Dogs.**
(with Dan van Peurseem).
Recent Advances in Applied Mathematics and Computational and Information Sciences

Volume I, WSEAS Press, 2009;

● **Design and Fuzzy Control of Hand Prosthesis of Anthropomorphic Robotic Hand.**

(with Chivu Catrina, Chivu Cătălin).

Transactions on Systems and Control

Issue 5, Volume 3, WSEAS Press, May 2008.

● **Romanian Language and Dialog Systems.**

(with Chivu Catrina, Chivu Cătălin).

Transactions on Systems and Control

Issue 5, Volume 3, WSEAS Press, May 2008.

● **The Boundary Map And The Connecting Orbits.**

Topology and Its Applications

Volume 153, Issue 18, 3555-3571, December 2006.

● **Chaotic Dynamics of Some Rational Maps.**

(with Joița C., Nowell W., Stănică, P.).

Discrete and Continuous Dynamical Systems

Serie A, Volume 12, Number 2, 363-375, February 2005.

● **3-Dimensional Poisson Manifolds. Casimirs.**

(with Puta M.)

Annals of University Timișoara, Ser.Mat-Inform,

Vol.34, no.1, 151-159, 1996.

● **Duffing's Equation.**

The Geometry and Topology Seminar of West University of Timișoara,

No.112, Timișoara, 1996.

Other Works

● **Connecting Orbits and the Boundary Map Method: An application of the Conley Index Theory.**

VDM Verlag

June, 2009;

● **Existence Results For Urysohn Integral Equations.**

Preprint, SUNY at Buffalo, 2003.

● **Operational Research.**

(with Mitran I., Noaghi. S.,). *Textbook: Vol. I: Elements of Optimization Theory, Vol. II: Strategic Behavior,*

University of Petroșani, 1996. (in romanian)

● **The Bifurcations of Hamiltonian Systems with Symmetry.**

Research Works of University of Petroșani, vol. 26, no.2, University of Petroșani 1994.

(in romanian)

Conferences Workshops Seminars

● **IMA year on Infinite Dimensional and Stochastic Dynamical Systems 2012-2013.**

Workshops: Dynamical Systems in Studies of Partial Differential Equations, September 24-28,2012; Random Dynamical Systems, October 22-26, 2012; Mean Field Games and Applications, November 12-13, 2012; Lattice and Nonlocal Dynamical Systems and Applications, December 3-7, 2012;

Seminars: Joint IMA/ Mathematics and Climate Research Network Seminar; Dynamics of Evolutionary equations;

● **IMA Special Workshop: Third Abel Conference.**

A Mathematical Celebration of Endre Szemerédi, November 29- December 1, 2012.

● **Fuglede-Kadison Determinants For Operators In The Von Neumann Algebra Of An Equivalence Relation.**

1074th AMS Sectional Meeting, October 14–16, 2011, University of Nebraska Lincoln. (Joint work with Gabriel Picioroaga.)

● **Fuglede-Kadison Determinants For Operators In The Von Neumann Algebra Of An Equivalence Relation.**

Great Plains Operator Theory Symposium 2011, May 18–22, 2011, Arizona State University. (Joint work with Gabriel Picioroaga.)

● **Topological Entropy.**

Mathematics Seminar-USD, December 1, 2010.

● **Dynamics of a population model.**

Mathematics Seminar-Northeastern Illinois University, November 6, 2009.

● **Midwest Dynamical System Conference-Participation.**

University of Illinois, Chicago, November 6-8, 2009.

● **Dynamics of a population model controlling the spread of plague in prairie dogs.**

The Seminar in Computational Science and Statistics, USD, September 24, 2009. Joint work with Dan Van Peurse.

● **Dynamics of a population model controlling the spread of plague in prairie dogs.**

15th American International Conference on Applied Mathematics, Houston, April 30-May 2, 2009. Joint work with Dan Van Peurse.

● **Dynamics of a population model.**

Joint work and presented by Dan Van Peurse at Nebraska/SE South Dakota Section of MAA, Hastings College, Hastings, NE, April 3-4, 2009.

● **A result regarding the boundary map of an attractor-repeller pair.**

1030th AMS Meeting, DePaul University, Chicago, October 5-6, 2007.

● **Dynamics Idea in Geometry, Topology and Number Theory: Conference Honoring Svetlana Katok's Birthday.**

Department of Mathematics, Penn State, University Park, May 5-6, 2007.

● **Structural Stability of Vector Fields.**

Mathematics Department Seminar, University of South Dakota, April 2, 2007.

● **Nebraska/SE South Dakota Section of MAA Conference- Participation.**

Dakota State University, Madison, SD, March 30-31, 2007.

● **The Fundamental Theorem of Dynamical Systems.**

Mathematics Department Seminar, University of South Dakota, October 2, 2006.

● **Detection of the Connecting Orbits Using the Boundary Map in Conley Index Theory.**

AMS Fall Central Section Meeting, University of Nebraska at Lincoln, October 21-23, 2005.

● **Midwest Dynamical Systems Seminar-Participation.**

University of Minnesota, April 1-3, 2005.

● **Dynamics on Manifolds.**

Mathematics Department Seminar, University of South Dakota, February 22, 2005.

● **Ordering Chaos.**

NSF program for CSEMS students, University of South Dakota, November 15, 2004.

- **Capacities and the Problem of Periodic Orbits in Hamiltonian Systems.**
Graduate Student Seminar, Buffalo, 1999.
- **Three Dimensional Lie Algebras. Lie Poisson Structures. Casimirs.**
(with Prof. M.Pută) The National Conference On Geometry and Topology, 18-23 September,
Iași, Romania, 1995.
- **Three Dimensional Poisson Manifolds. Casimirs.**
(with Prof. M.Pută) ECMI Workshop "Applied Mathematics and Industrial Problems",
14-16 September, Romanian Academy, Bucharest, Romania, 1995.
- **Three Dimensional Poisson Manifolds. Casimirs.**
(with Prof. M.Pută) The Second Conference of Applied and Industrial Mathematics,
Oradea, Romania, 25-27 August, 1995.
- **Bifurcation and Stability Problems of Some Bars.**
ICIAM'95-Hamburg, Germany, 1995.

Referee Work

- **Proceedings of the National Conference on Undergraduate Research, 2011.**
- **Journal of Differential Equations.**
- **Proceedings of the International Conference on Fibonacci Numbers, Greece, 2008.**
- **Reviewer for the American Mathematics Competitions:**
The American Invitational Mathematics Examination 2006-

Awards

- **Who's Who in Sciences Higher Education (WWSHE), 2006.**
Inclusion in the Academic Keys.
- **Gehman Award**
The annual award of the Mathematics Department for outstanding teaching as an instructor and teaching assistant, Buffalo, 2000.
- **Who's Who Among Students in American Universities and Colleges.**
Graduate School Award, Buffalo, 1999.
- **The ROMAI Prize for Young Researchers.**
ROMAI= The Romanian Society of Applied and Industrial Mathematics, 1995.
- **Prizes at the Romanian Mathematical Competitions for high-school students:**
-Second Prize at the National Competition in Mathematics "Traian Lalescu", 1987.
-Third Prize at the National Competition of the National Journal for High School Students "Gazeta Matematica", 1987.
-Mention at the National Olympiad in Mathematics, 1986.
-Mention at the National Research Competition for High School Students, 1986.

Teaching

- **University of South Dakota:**
Calculus I, II, III, Differential Equations, Advanced Calculus I, II, Advanced Algebra-Graduate level, Combinatorics, Dynamical Systems.
Advisor for some students majoring in mathematics.
- **SUNY at Buffalo:**
Precalculus, Calculus I, II and III, and teaching assistant for all levels Calculus and Advanced Calculus I and II.
- **University of Petrosani:**
Differential Equations Course for Engineers, and teaching assistant for Operational Research Course for Business Students .

● **Workshop in Quantitative Literacy - April 14 2008**

The Workshop was organized by the MATH Task Force of University of South Dakota. Leader of workshop: Bernard L. Madison, University of Arkansas.

● **Online Courses:**

Calculus I.

**Student
Research,
Awards**

● **Raysuri Zaiter Ciccone:**

Periodic Orbits of Hamiltonian Systems and a Conjecture of Ginzburg, *Master Degree Thesis*, Work in progress.

● **Douglas Dailey:**

On the Dynamics of Quadratic and Cubic Maps, *Honors Thesis*, 2011.

● **Madeline Schrier:**

The Recognition Problem for one-dimensional and planar dynamical systems, *Honors Thesis*, 2011.

● **Douglas Dailey:**

On the Dynamics of Quadratic and Cubic Maps.

Talks given at Idea Fest 2011, NCUR 2011, Ithaca, NY and at "Mathematics on the Northern Plains Conference", Augustana College, Sioux Falls, 2011.

● **Madeline Schrier:**

The Recognition Problem for one-dimensional and planar dynamical systems.

Talks given at Idea Fest 2011, NCUR 2011, Ithaca, NY and at "Mathematics on the Northern Plains Conference", Augustana College, Sioux Falls, 2011.

● **Donald Hixon:**

Applications of Combinatorial Nullstellensatz, *Graduate Thesis*, 2010.

● **Douglas Dailey:**

Dynamics of A Cubic Map.

Talk given at "Idea Fest", April 7-April 8, 2010.

● **Madeline Schrier:**

Classification of Flows on the Real Line.

Talk given at "Idea Fest", March 31-April 1, 2009.

● **Anne Doshier:**

Chaos on Modelling Interest Rates, 2008.

● **Michael Pudenz:**

Yield and Recovery Time in a Logistic Model.

Talk given at "Mathematics on the Northern Plains Conference", University of Sioux Falls, April 29th, 2006.

● **Goldwater Winners for whom I wrote support letters:**

Winnie Zou-2009, Douglas Dailey-2010.

**Department
Service**

● Assessment Committee (Chair), 2004-Present

● Graduate Studies Committee, 2004-Present

● Training the Mathematics Department Team(s) for the North/Central MAA Competition, 2004-Present

● Coordinator of Precalculus Exam for Merten Hasse High School Competition, 2005-Present (the annual regional High School Competition Organized by the Mathematics Department).

● Member Dissertation Committee: Adam Baldwin, Computational Science and Statistics Program, PhD Defense, 2011.

● Chair for two graduate students Exit Committees, 2 students-2009, 1-student-2011.

- Member Hiring Search Committee, 2009.
- Graduate Program brochure, 2007.
- Author: "Math Prexis Review in Trigonometry", for South Dakota Board of Regents, 2005.
- Advisor for an average of 5 mathematics majors per year.

College- University Service

- University Graduate Council (2008-2012). Member of the Curriculum and Instruction Committee
- College of Arts and Sciences Diversity Task Force, 2011-2012.
- Chaperon of the USD delegation at the National Conference for Undergraduate Research, Ithaca, NY, 2011.
- Idea Fest (USD Student Research Conference) Organizing Committee, 2011.
- College of Arts and Sciences Scholarship Committee, 2011,2012.
- Scholarship Recognition Day Committee, February 26 & 27, 2011, February 26, 2012.
- College of Arts and Sciences Curriculum and Instruction Committee (2007-2009).
- Equal Opportunity Representative.

Grants

- Research Excellence Grant, \$16200, 2010-2011. Joint with Gabriel Picioroaga.
- Arts and Science Travel Grant,\$720, February 2009. Joint with Dan Van Peurseem.
- Work done at the proposal phase for Howard Hughes Medical Institute Grant, 2006.

Software

- Microsoft Office, HTML, Latex, Maple, Matlab.
- Teaching online software: Desire to Learn (D2L), WebAssign, Elluminate.

Affiliation

- AMS- American Mathematical Society.
- MAA- Mathematical Association of America, 2005-2010.
- GAMM- European Society of Applied and Industrial Mathematics.
- ROMAI- Romanian Society of Applied and Industrial Mathematics.
- Sigma Xi-South Dakota Chapter.
- Pi Mu Epsilon-South Dakota Chapter.