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Olguta Buse

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Personal

- Born: May 10, 1973. Romania.
- Status: USA Permanent Resident.

Education

- SUNY at Stony Brook, PhD in mathematics, August 2002.
Advisor: Dusa McDuff.
- University of Bucharest, MS in mathematics, June 1996.
Advisor: Kostake Teleman (Thesis: “*Spectral sequences and applications*”).

Professional Appointments

- Assistant Professor, IUPUI 2005 – Present.
- Visiting Research Instructor, Michigan State University, 2002 – 2005.
- Research Assistant, SUNY at Stony Brook, 2001 – 2002.
- Teaching Assistant, SUNY at Stony Brook, 1997 – 2000.

Visiting Positions

- MSRI Berkeley, CA, Summer/Fall 2009.
- Instituto de Matematicas UNAM, Mexico; May 2008.
- Max Planck Institute – Bonn, Germany, Summer 2007.
- Max Planck Institute – Bonn, Germany, Summer 2006.
- Institut des Hautes Études Scientifiques, France, Spring 2006.
- University of Toronto, Canada, Winter 2006.
- Visiting Research Fellow, IPAM (UCLA), March, May – June 2003.

Research Interests

Symplectic and Contact Geometry, Four-manifolds, Singularities, Complex and Algebraic Geometry, Mathematical Biology.

Publications

- “*Symplectic Embedding of Ellipsoids in Dimension Greater Than Four.*” (with R. Hind) *Geom. and Top.* to appear.
- “*Negative Inflation and Stability in the Symplectomorphism Groups of Ruled Surfaces.*” *J. Symp. Geom.* **9**, # 2 (2011), 1-14.
- “*Deformations of Whitehead products, symplectomorphism groups and Gromov-Witten invariants.*” *Int. Math. Res. Not.* **17**, (2010), 33033340.
- “*Existence of Limit Cycles in the Repressilator Equations.*” (with A. Kuznetsov and R. Perez) *Internat. J. Bifur. Chaos Appl. Sci. Engrg.* **19** (12), (2009), 40974106.
- “*Dynamical Properties of the Repressilator Model.*” (with A. Kuznetsov and R. Perez) *Phys. Rev. E* **81** (066206), (2010).
 - This paper was featured in the Virtual Journal of Biological Physics Research, June 15, 2010, Vol. 19, Issue 12.
 - An image from this paper was selected to form part of the Phys. Rev. E Kaleidoscope Images on June 2010.
- “*Relative family Gromov-Witten invariants and symplectomorphisms.*” *Pacif. J. of Math.* **18**, # 2 (2005), 315–342.
- “*Packing Numbers in Symplectic Rational Ruled Surfaces.*” (with M Pinsonnault) Submitted.
- “*Parametric family Gromov-Witten invariants and symplectomorphisms.*” PhD Thesis.
- “*Gromov-Witten regular neighborhoods arising from deformations of complex structures.*” In preparation.

Funding:

- NSF Workshop Grant DMS–0758290; 2008.
- Purdue Summer Travel Grant; 2007,2009.

Honors and Exceptional Qualifications:

- Invited Research Member, Symplectic and Contact Geometry and Topology Program, MSRI, Berkeley, CA; Summer 2009 Summer 2010.
- Research Fellow during the special semester on “*Symplectic Geometry and Physics*”; IPAM (UCLA), May – June 2003.
- Award winning team in MathQuiz 2000. A research level mathematics competition organized by the Centre de Recerca Matemàtica, Barcelona as part of the activities for World Mathematical Year 2000.
- Teaching Fellowship of the Learning Communities Program; Stony Brook, 1999 – 2000.

- National Merit Fellowship of the Romanian Government; Bucharest, 1991 – 1996.
- National Romanian Olimpiads in both Mathematics and Physics (6 years), first prize in the “*Gheorghe Țițeica intercounty competition*” in 1990 and the second prize in the “*Young Researcher’s Scientific Reports in Informatics*” competition in 1987.

Invited Conferences and Seminar Talks

- Topology Seminar, University of Georgia, Athens, GA, October 10, 2011.
- Topology Seminar, University of Iowa, Iowa City, IA, May 6, 2011.
- Colloquium, University of Iowa, Iowa City, IA, May 5, 2011.
- AMS regional meeting; Worcester Polytechnic Institute, April 2009.
- “*Guillermo Torres*” Seminar; Instituto de Matemáticas, UNAM Mexico, May 2008.
- AMS regional meeting; Claremont McKenna College, May 2008.
- Brussels–Cologne Joint Seminar on Symplectic and Contact Geometry; Université Libre de Bruxelles, Belgium, April 2006.
- “Arthur Besse” Seminar; Ecole Polytechnique, Paris, April 2006.
- Symplectic seminar; University of Toronto, February 2006.
- Joint Symplectic Seminar; IUPUI, September 2005.
- Symplectic Geometry and Physics Reunion I; IPAM, Lake Arrowhead, May 2005.
- Colloquium; IUPUI, March 2005.
- Geometry Seminar; McMaster University, March 2005.
- AMS regional meeting “*Symplectic and contact geometry*”; Los Angeles, April 2004.
- Culminating workshop for IPAM’s “*Symplectic Geometry and Physics*”; Lake Arrowhead, June 2003.
- Topology and geometric group theory seminar (2 lectures); Cornell, March 2003, November 2003.
- Symplectic seminar (7 lectures); Michigan State University, October 2002 – February 2003, October 2003, September 2004.
- Geometry and topology seminar; Notre Dame University, October 2002.
- Fifth Conference on Geometry and Topology (J. of Diff. Geom.) - poster session; Harvard, May 2002.
- Sectional AMS meeting *Symplectic and contact topology*; Atlanta, March 2002.
- Geometry Seminar; PennState University, October 2001.
- Mentoring Program for Women in Mathematics; IAS - Princeton, May 2001.

- Symplectic seminar; Stony Brook, 2001–2002.
- Graduate Seminar; Stony Brook, 2000.

Lectures and Minicourses

- 6 lecture minicourse in “*Enumerative Geometry*”. Symplectic seminar; Stony Brook, 1999.
- Teaching Assistant for the “*Lectures in Symplectic Topology*” delivered by Dusa McDuff. Mentoring Program for Women in Mathematics; IAS - Princeton, 2002.

Synergistic Activities and memberships

- Co-organizer of the NSF sponsored “*Illinois-Indiana Symplectic Geometry Conference*”; a semestral conference organized in collaboration with Purdue University, Notre Dame University and University of Illinois at Urbana-Champaign; 2008 – 2010.
- Co-organizer of the “*Joint Symplectic Seminar*”; a seminar that brings together researchers from IUPUI, IU Bloomington, and Purdue University; 2006 – Present.
- Since 2001 I have been a reviewer for Mathematics Reviews.
- Colloquium committee; IUPUI.
- Undergraduate Faculty Advisor, IUPUI.
- In charge of the Topology Qualifying Exams, IUPUI; Winter 2007.
- Calculus coordinator (Math 16500/16600); 2010 – Present.

Sponsored/Invitational Conferences (selected)

- “*1st Illinois-Indiana Symplectic Geometry Conference*,” IUPUI, March 2008.
- “*2nd Illinois-Indiana Symplectic Geometry Conference*,” Notre Dame University, November 2008.
- “*New Perspectives and Challenges in Symplectic Field Theory*,” Palo Alto, June 2007.
- “*Developments in Understanding Symplectic Geometry and Topology*,” Stony Brook, October 2006.
- “*VII Workshop on Symplectic and Contact Topology*,” Universidad Carlos III, Getafe, Spain, August 2006.
- “*Recent Advances in Symplectic Geometry*,” Banff, December 2005.
- Holomorphic curves focus group; Princeton, June 2005.
- Symplectic Geometry and Physics Reunion I, IPAM, Lake Arrowhead, May 2005.
- Great Lakes Geometry Conference at Perimeter Institute for Theoretical Physics; Canada, May 2005.
- CRM-ISM summer school: “*Morse theoretic methods in nonlinear analysis and symplectic topology*,” Université de Montreal, June 2004.

- MSRI workshop: “*Symplectic geometry and mathematical physics*,” March 2004.
- CIME school: “*Symplectic 4-Manifolds and Algebraic Surfaces*,” Cetraro, Italy, September 2003.
- AIM Workshop on “*Holomorphic Curves in Contact Geometry*” (invited participant); Stanford, August 2003.
- Culminating Workshop for IPAM’s “*Symplectic Geometry and Physics*” (invited participant); Lake Arrowhead, June 2003.
- “*Fifth Conference on Geometry and Topology*” (J. of Diff. Geom.) (invited participant); Harvard, May 2002.
- Mentoring Program for Women in Mathematics; IAS - Princeton, May 2001, May 2002.
- Summer school “*Quantum Field Theory, Supersymmetry and Enumerative Geometry*,” IAS - PCMI, Park City, July 2001.
- Summer school in symplectic topology; Lisbon, June 1998.