

RUXANDRA BONDARESCU

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Gender: Female

Date of Birth: 09/10/1982

RESEARCH INTERESTS

high-energy astrophysics, compact objects, X-ray binaries, internal structure of neutron stars, stellar oscillations, nonlinear dynamics, physics at high densities, numerical simulations

EDUCATION

- Cornell University 2003 – present
 - MS in Physics 2007
 - Ph.D. in Physics, expected 2008
- University of Illinois at Urbana-Champaign 2001– 2003
 - B.S. in Physics 2002
 - With Magna cum Laude and Highest Distinction in the Curriculum*
 - Minor in Mathematics and Minor in Computer Science
 - M.S. in Physics 2003
- West University of Timisoara, Romania 2000 – 2001
 - Attended courses in the Department of Physics and in the Department of Mathematics and Informatics
- Politehnica University, Timisoara 2000 – 2001
 - Merit Scholarship
 - Attended courses in the Department of Computer Science

PUBLICATIONS

Work In Preparation

6. **R. Bondarescu**, S. A. Teukolsky, I. Wasserman, “Spin Evolution of New Born Neutron Stars: Nonlinear Development of the r-mode Instability”, to be submitted to Phys. Rev. D.

Refereed Publications

5. A. P. Lundgren, **R. Bondarescu**, D. Tsang, M. Bondarescu, “Finite Mirror Effects in Advanced Interferometric Gravitational Wave Detectors”, Accepted by Phys. Rev. D on December 13, 2008, to appear in the January 2008 issue, [arXiv:0710.3808].
4. J. Balakrishna, **R. Bondarescu**, G. Daues, M. Bondarescu – “Numerical Simulations of Oscillating Soliton Stars: Excited States in Spherical Symmetry and Ground State Evolutions in 3D”, Accepted by Phys. Rev. D on December 5, 2007, to appear in the January 2008 issue, [arXiv:0710.4131]
3. **R. Bondarescu**, S. A. Teukolsky, I. Wasserman, “Spin Evolution of Accreting Neutron Stars: Nonlinear Development of the R-mode Instability”, Phys. Rev. D **76** (2007), 064019, pages 064019-1 to 064019-18, [arXiv:0704.0799]
2. J. Balakrishna, **R. Bondarescu**, G. Daues, F. S. Guzman and E. Seidel, “Evolution of 3D Boson Stars with Waveform Extraction”, Class.Quant.Grav. **23** (2006) 2631-2652. [arXiv:gr-qc/0602078]
1. **R. Bondarescu**, G. Allen, G. Daues, I. Kelley, M. Russell, E. Seidel, and M. Tobias, “The Astrophysics Simulation Collaboratory Portal: A Framework for Effective Distributed Research”, Future Generation Computer Systems **21** (2005), 259-270.

CONFERENCE TALKS AND RESEARCH SEMINARS

Summary

-- 11 conference presentations in USA, Canada, Australia, Romania, etc.

- CAM, McGill University, Montreal, Canada 08/2007
Talk: "Rossby waves in neutron stars"
Poster (together with Mihai Bondarescu and Andrew Lundgren):
"Hyperboloidal beams in Advanced LIGO"
- GR18, Sydney, Australia 07/2007
Talk: "Spin Evolution of Accreting Neutron Stars and the R-mode instability"
- East Coast Gravity Meeting and the Teukolsky birthday symposium, Cornell, Ithaca, NY 06/2007
Talk: "Spin Evolution of Accreting Neutron stars: Nonlinear development of the r-mode instability"
Chaired a session
- April American Physical Society (APS) meeting, Jacksonville, FL 04/2007
Talk: "Nonlinear development of the r-mode instability in accreting neutron stars: Three modes"
- International Conference for Physics Students, Bucharest, Romania 08/2006
Talk: "Rossby waves in spinning neutron stars"
- CAM, San Diego, CA 08/2005
Talk: "How fast can neutron stars spin?"
- Summer School in Grid Computing, University of Texas at Brownsville 07/2005
- April APS Meeting, Tampa, FL 04/2004
Talk: "Evolution of 3D boson stars"
- East Coast Gravity Meeting 8, Wake Forest, NC 03/2004
Talk: "3D Evolutions of Boson Stars with Extraction of Gravitational Waveforms"
- One hour seminar talk at West University of Timsoara, Romania 12/2003
Talk: "Introduction to Boson Stars"
- Several talks at Cornell at Relativity Lunch (~ a one hour talk each semester either summarizing my work or a recent paper) 2003-2008
- GAT Workshop, Cardiff, United Kingdom 08/2003
Talk: "Requirements for Grid enabling an application"
- GridLab All Hands Meeting, Eger, Hungary 04/2003
Talk: "The Astrophysics Simulation Collaboratory Portal"
- Invited talk at Louisiana State University, Baton Rouge, LA 02/2003
Talk: "The Astrophysics Simulation Collaboratory Portal: A Tool for Numerical Relativity"
- Exhibitor, SC2002 High Performance Networking and Computing Conference, Baltimore, MD 11/2002
Our Group (led by Prof. Edward Seidel) won two HPC Challenge Awards for having the most distributed application and the most heterogeneous set of platforms
- GridLab All Hands Meeting, Zakopane, Poland 09/2002

RESEARCH EXPERIENCE

Cornell University

- Cornell Fellow
- Research Assistant (funded by NSF)
Advisors: Prof. Saul Teukolsky and Prof. Ira Wasserman

2003 - present
2003 – 2005
2005 - present

University of Illinois at Urbana-Champaign

National Center for Supercomputing Applications

- Research Assistant (funded by NSF and Microsoft)
Advisor: Prof. Edward Seidel, Local Supervisor: Dr. Gregory E. Daues

2001 – 2003

FELLOWSHIPS AND SCHOLARSHIPS

- Two year Cornell Fellowship
- Merit Scholarship awarded by the Office of International Students,
University of Illinois at Urbana-Champaign
- Dean's List

2003 -2005
2002
2002

RECENT TRAVEL GRANTS

- Travel Grant from APS to attend the CAM 2007 conference
- A combination of travel grants from the organizers (IUPAP/ISGRG grant), NSF and the Cornell Graduate School to attend the GR18 and Alaldi 7 Meetings in Australia
- A combination of travel grants from APS (Topical Group of Gravitation) and the Cornell Graduate School to attend the April APS Meeting in Jacksonville, FL
- Travel Grant covering all expenses to attend the Summer School in Grid Computing at the University of Texas at Brownsville.
- Travel grant from APS to attend the CAM 2005 conference in San Diego, CA
- Travel grant from APS (Topical Group of Gravitation) to attend the April Meeting in Tampa, FL

08/2007
07/2007
04/2007
07/2005
08/2005
04/2004

STUDENTS ADVISED AND MENTORED

- Jenica Abrudan [pabrudan@nd.edu] (the year after college graduation)*
- Graduate student, currently Research Assistant in Bio-Informatics,
University of Notre-Dame, Indiana**
- Ana Elena Buleu [anabuleu@cct.lsu.edu] (highschool)*
- Undergraduate student with full financial support at Louisiana State
University (LSU)**
- Elena Caraba [elena@cct.lsu.edu] (highschool)*
- Undergraduate with full financial support at LSU**
- Irina Craciun [irina@cct.lsu.edu] (highschool)*
- Undergraduate with full financial support at LSU**

2005 – 2006
2006 – present
2005 – 2006
2006 – present
2002 – 2005
2005 – present
2004
2004 – present

*period when I advised them, ** current position

TEACHING, OUTREACH AND LEADERSHIP

Teaching Assistant

Cornell University

2004 - 2005
Spring 04, Fall 05

- Physics 217 (Electricity and Magnetism for Honor Students)

University of Illinois at Urbana-Champaign

2002 - 2003

- Physics 114 (General Physics: Waves and Quantum Mechanics)
- Physics 140 (Practical Physics: How Things Work)
- Physics 371 (Light).
- Organized two informal series of lectures based on Kip Thorne's PH 237 course on Gravitational Waves together with my brother, Mihai Bondarescu.

Spring 02

Fall 03

Spring 03

- One at Cornell:

http://www.astro.cornell.edu/~ruxandra/GW_Spring04.htm

- One at LSU during the 2003 winter break: we had students coming on Christmas and New Years Eve to lectures!

http://www.tapir.caltech.edu/~mihai/GW_Winter03.htm

- Vice-President of the Graduate Women in Physics Group at Cornell

2006 - 2007

- Applied for funding from the Graduate School

- Invited and partially sponsored two colloquium speakers:

Prof. Manuela Campanelli (RIT) and Dr. Evalyn Gates (U. of Chicago)

- Organized receptions/dinners with female colloquium speakers visiting the Physics and Astronomy Departments at Cornell

REFERENCES

Prof. Saul Teukolsky
saul@astro.cornell.edu
608 Space Sciences Building,
Cornell University
Ithaca, NY 14853

Prof. Ira Wasserman
ira@astro.cornell.edu
626 Space Sciences Building,
Cornell University,
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Dr. Gregory E. Daues
daues@ncsa.uiuc.edu
National Center for Supercomputing Applications,
University of Illinois at Urbana-Champaign,
1205 W. Clark St, MC-257,
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Prof. Edward Seidel
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Center for Computation & Technology
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Baton Rouge, LA 70803