

RUXANDRA BONDARESCU

104 Davey Laboratory
Physics Department
The Pennsylvania State University
University Park, PA 16802-6300

Web <http://www.gravity.psu.edu/~ruxandra>
Email ruxandra@gravity.psu.edu
Phone 607-351-4871

Gender: Female
Date of Birth: 09/10/1982

RESEARCH INTERESTS: gravitational wave astronomy, high-energy astrophysics, internal structure of neutron stars, stellar oscillations, nonlinear dynamics, cosmology

EDUCATION

- Cornell University 2003 – 2008
 - Ph.D. in Physics 2008
 - M.S. in Physics 2007
- 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

WORK EXPERIENCE

- Pennsylvania State University 2008-present
 - Postdoctoral Scholar
- Cornell University 2003 - 2008
 - Research Assistant 2003 - 2008
Advisors: Prof. Saul Teukolsky and Prof. Ira Wasserman
 - Teaching Assistant
 - Physics 217 (Electricity and Magnetism for Honor Students) 2004, 2005
 - Astro 290 (Relativity and Astrophysics) 2007
- University of Illinois at Urbana-Champaign 2001 – 2003
- National Center for Supercomputing Applications 2001 - 2003
 - Research Assistant (funded by NSF and Microsoft)
Advisor: Prof. Edward Seidel, Local Supervisor: Dr. Gregory E. Daues
 - Teaching Assistant, Physics Department 2002 - 2003
 - Physics 114 (General Physics: Waves and Quantum Mechanics)
 - Physics 140 (Practical Physics: How Things Work)
 - Physics 371 (Light).

PUBLICATIONS

Work In Preparation

11. “Distinguishing GRB progenitors using GW polarization measurements” in collaboration with R. Kopparapu, L. S. Finn, M. Lang and T. Summacerles (to be submitted to ApJ)
10. “Measuring the polarization of inferred gravitational waveforms from noisy data from a network of GW detectors” in collaboration with R. Kopparapu, L. S. Finn, M. Lang and T. Summacerles
9. “Luke-warm Dark Matter: Bose condensation of ultra-light particles” in collaboration with A. P. Lundgren, M. Bondarescu and J. Balakrishna
8. “The R-mode instability in the fastest rotating neutron stars: constrains on neutron star physics” in collaboration with I. Wasserman and S. Teukolsky.

Ph.D. Thesis

7. **Ruxandra Bondarescu**, “Spin Evolution of Neutron Stars: Nonlinear Development of the R-mode Instability”, Ph.D. Thesis, Cornell University, 2008.

Refereed Publications

6. **R. Bondarescu**, S. A. Teukolsky, I. Wasserman, “Spinning Down Newborn Neutron Stars: Nonlinear Development of the R-mode Instability”, [arXiv:0809.3448], Phys. Rev. D **79**, 104003 (2009).
5. A. P. Lundgren, **R. Bondarescu**, D. Tsang, M. Bondarescu, “Finite Mirror Effects in Advanced Interferometric Gravitational Wave Detectors”, Phys. Rev. D **77**, 042003 (2008), [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”, Phys. Rev. D **77**, 024028 (2008), 12 pages, [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, 18 pages, [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, J. Shalf, and M. Tobias, “The Astrophysics Simulation Collaboratory Portal: A Framework for Effective Distributed Research”, Future Generation Computer Systems **21** (2005), 259-270.

CONFERENCE PRESENTATIONS

- Amaldi Meeting, NYC (talks, posters) 06/2009
- American Physical Society (APS) Meeting, Denver, CO (talk, poster) 05/2009
- LIGO-Virgo Collaboration Meeting, CA (poster) 03/2009
- East Coast Gravity Meeting, State College, PA (talk) 05/2008
- April APS Meeting, St Louis, MO (talk) 04/2008
- Canadian American Mexican conference for students (CAM), McGill University, Montreal, Canada (poster, talk) 08/2007
- GR18, Sydney, Australia (talk) 07/2007
- East Coast Gravity Meeting and the Teukolsky birthday symposium, Cornell, Ithaca, NY (talk; also *chaired a session*) 06/2007
- APS meeting, Jacksonville, FL (talk) 04/2007
- International conference for physics students, Bucharest, Romania (talk) 08/2006

- CAM, San Diego, CA (talk) 08/2005
- Summer School in Grid Computing, University of Texas at Brownsville 07/2005
- April APS Meeting, Tampa, FL (talk) 04/2004
- East Coast Gravity Meeting 8, Wake Forest, NC (talk) 03/2004
- One hour seminar talk at West University of Timsoara, Romania 12/2003
- 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 (talk) 08/2003
- GridLab All Hands Meeting, Eger, Hungary (talk) 04/2003
- Invited talk at Louisiana State University, Baton Rouge, LA (talk) 02/2003
- Exhibitor, SC2002 High Performance Networking and Computing (HPC) Conference, Baltimore, MD 11/2002
- *Our Group (led by Prof. Edward Seidel and Dr. Gabrielle Allen) 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

FELLOWSHIPS, SCHOLARSHIPS AND ASSISTANTSHIPS

- Graduate Research Assistantships 2005 -2008
- Teaching Assistantships 2004-2005, 2002-2003
- Two year Cornell Fellowship 2003 -2005
- Merit Scholarship awarded by the Office of International Students, University of Illinois at Urbana-Champaign 2002
- Dean's List 2002

STUDENTS ADVISED AND MENTORED

- Jenica Abrudan [pabrudan@nd.edu] (the year after college graduation)* 2005 – 2006
- Graduate student, currently Research Assistant in Bio-Informatics, University of Notre-Dame, Indiana** 2006 – present
 - Ana Elena Buleu [anabuleu@cct.lsu.edu] (highschool)* 2005 – 2006
- Undergraduate student with full financial support at Louisiana State University (LSU)** 2006 – present
 - Elena Caraba [elena@cct.lsu.edu] (highschool)* 2002 – 2005
- Graduate student in computer science at U. of Illinois at Urbana** 2005 – present
 - Irina Craciun [irina@cct.lsu.edu] (highschool)* 2004
- Graduate student in mathematics at LSU** 2004 – present
- *period when I advised them, ** present position

TRAVEL GRANTS

- Travel Grant from the American Physical Society (APS) to attend the April APS meeting 04/2008
- Travel Grant from APS to attend the CAM 2007 conference 08/2007
- Travel Grant from APS to attend the CAM 2007 conference 07/2007
- A combination of travel grants from the organizers (IUPAP/ISGRG), NSF and the Cornell Graduate School to attend the GR18 and Almaldi 7 Meetings in Australia 04/2007
- A combination of travel grants from APS (Topical Group of Gravitation) and the Cornell Graduate School to attend the APS Meeting

- Travel Grant covering all expenses to attend the Summer School in Grid Computing at the University of Texas at Brownsville. 07/2005
- Travel grant from APS to attend the CAM 2005 conference in San Diego, CA 08/2005
- Travel grant from APS (Topical Group of Gravitation) to attend the April Meeting in Tampa, FL 04/2004

TEACHING, OUTREACH AND LEADERSHIP

- Organized two informal series of lectures based on Kip Thorne's PH 237 course on Gravitational Waves together with my brother, Mihai Bondarescu. 2003 - 2004
 - One at Cornell: Spring 04
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! Winter 03
http://www.tapir.caltech.edu/~mihai/GW_Winter03.htm
- Vice-President of the Graduate Women in Physics Group at Cornell 2006 – 2007
 - Awarded funding from the Graduate School and the Women Resource Center at Cornell
 - Invited and 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
- Expanding Your Horizons buddy for a 5th grader interested in science Summer 2008
- Astrofest: presented – Make your own comet, Spectroscopy, and A tour guide of the universe activities to interested children and parents Summer 2009

PROGRAMMING EXPERIENCE

C/C++, Fortran, Java, Java Server Pages, Javascript, Perl, Matlab, Mathematica

REFERENCES

Prof. Lee Samuel Finn
 LSFinn@psu.edu
 104 Davey Lab,
 Pennsylvania State University,
 University Park, PA

Prof. H. Edward Seidel
 hseidel@nsf.gov
 Director
 Office of Cyber Infrastructure,
 National Science Foundation,
 4201 Wilson Boulevard, Arlington, VA

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

Prof. Ira Wasserman
 ira@astro.cornell.edu
 626 Space Sciences Building,
 Cornell University, Ithaca, NY