

Predrag Punoševac

CURRICULUM VITÆ

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Research interests

Differential equations and dynamical systems of mathematical physics

Publications

- [1] Predrag Punoševac and Sam L. Robinson. Dynamics of uncertainties for one-dimensional semiclassical wave packets: Isochronicity, scattering, and capture. *J. Math. Phys.*, 60(5):052106, 14, 2019.
- [2] Predrag Punoševac and Sam L. Robinson. Dynamics of uncertainties for bound one-dimensional semiclassical wave packets. *J. Math. Phys.*, 57(9):092102, 10, 2016.
- [3] Christian Poppeliers and Predrag Punoševac. Three-dimensional wave gradiometry for polarized seismic waves. *Bulletin of the Seismological Society of America*, 103(4):2161–2172, 2013.
- [4] Predrag Punoševac and Sam L. Robinson. Asymptotically minimal uncertainty states for time-dependent oscillators. *J. Math. Phys.*, 54(1):012106, 16, 2013.
- [5] Predrag Punoševac and Qiudong Wang. Regularization of simultaneous binary collisions in some gravitational systems. *Rocky Mountain J. Math.*, 42(1):257–283, 2012.

Education

2003–2007 **Ph.D. in Mathematics**, *University of Arizona*, Tucson, Arizona

Thesis title *Regularization of Simultaneous Binary Collisions in Some Gravitational Systems*

Advisor Qiudong Wang

1996–1997 **M.A. in Mathematics**, *University of Toledo*, Toledo, Ohio

1991–1995 **B.Sc. in Mathematics and Astronomy**, *University of Belgrade*, Belgrade, Serbia

Employment

2023–present **Scientist 3**, *Los Alamos National Laboratory*, HPC Division

- Cluster administration: HPE Cray EX supercomputers.

2019–2023 **Senior Systems Analyst**, *Carnegie Mellon University*, Auton Lab, Robotics Institute

2013–2019 **Systems Analyst**, *Carnegie Mellon University*, Auton Lab, Robotics Institute

- Technical responsibilities include: operating system installations and upgrades, network planning and implementation, security, users management, systems programming, maintenance of large-scale distributed computing system including secure storage and access to raw experimental data for a premier machine learning and data mining research group.
- Risk/compliance analysis (NIST SP 800-53, NIST SP 800-171, Cybersecurity Maturity Model Certification, FIPS 140-2, HIPAA).
- Data-driven methods for dynamical systems.
- Generalized Rayleigh quotient-type problems in machine learning.
- Physics-informed machine learning.

- 2010–2013 **Assistant Professor**, *Augusta State University*, Department of Mathematics
- Taught four courses per semester: Linear Algebra, Differential Equations, Mathematical Structures for Computer Science, Calculus and Analytic Geometry I & II, Precalculus, and College Algebra.
 - Academic advising.
 - Development and implementation of the Cloud Computing Lab (CCL).
- 2009–2010 **Visiting Lecturer**, *Georgia State University*, Dept. of Mathematics & Statistics
- Taught four courses per semester: Introduction to Mathematical Modeling, Elementary Statistics, and Calculus II.
 - Course coordinator for Elementary Statistics.
 - Developing and implementing large-scale course redesign for Web delivery.
- 2008–2009 **Assistant Professor**, *Lander University*, Department of Mathematics
- Taught four courses per semester: Real Analysis, Complex Variables, Linear Algebra, Introduction to Discrete Mathematics, Mathematics for Business, Life Sciences, and the Social Sciences.
- 2003–2008 **Teaching Associate**, *University of Arizona*, Department of Mathematics
- Taught up to two course per semester: Introduction to Ordinary Differential Equations, Vector Calculus, Calculus I with Applications, Brief Calculus, College Algebra, Plane Trigonometry.
 - Supervising undergraduate students working on research projects.
 - Qualifying exam review session leader for Real Analysis.
 - Super TA for applied mathematics core graduate course Principles of Analysis.
- Spring 2003 **Visiting Instructor**, *Oberlin College*, Department of Mathematics
- Taught two courses: Calculus II and Multivariable Calculus.
- 2002–2003 **Adjunct Faculty**, *John Carroll University*, Department of Mathematics
- Taught one course per semester: Calculus and Analytical Geometry.
 - Tutoring room coordinator.
- 1996–2002 **Teaching Assistant**, *University of Toledo*, Department of Mathematics
- Taught independently one course per semester: Calculus I-III, Numerical Methods and Linear Algebra, College Algebra, Math for Life Science, Modern Business Math, Beginning and Intermediate Algebra, Calculus for Engineering Tech.
- 1995–1996 **Teaching Assistant**, *University of Belgrade*, Faculty of Mathematics
- Conducting discussion sessions for two course per semester: Positional astronomy and Ephemeral astronomy. Utilized programming languages FORTRAN 77 and C to support numerical computations.

Selected talks

- April 2013 *Asymptotically Minimal Uncertainty States for Time-Dependent Oscillators*, Carolina Dynamics Symposium, UNC Chapel Hill
- February 2011 *Numerical Investigations of Chaotic Attractors in Some Classical Systems*, Mathematics Colloquium, Augusta State University
- September 2010 *Regularization of Simultaneous Binary Collisions in Some Gravitational Systems*, Mathematics Colloquium, USC Aiken
- April 2009 *Dynamics of a Periodically Perturbed Plane Pendulum*, Carolina Dynamics Symposium, UNC Charlotte
- April 2008 *An Introduction to Dynamical Systems*, Mathematics Colloquium, Wabash College
- September 2006 *Normal Forms in Local Dynamical Systems*, Graduate Student Colloquium, University of Arizona
- October 2005 *Regularization of Simultaneous Binary Collisions in Some Gravitational Systems*, Midwest Dynamical Systems Conference, Northwestern University

Grants and awards

- 2013–2014 MAA Project NExT-SE Fellow
2013–2016 NSF conference grant DMS-1301581, amount \$24,000
2012 NSF conference grant DMS-1201546, amount \$8,190
2010–2012 Augusta State University Committee for Undergraduate Research and Scholarship research grants, amounts range \$472–\$1,500 with the total of \$2572
Summer 2007 VIGRE REU mentoring fellowship \$3,600
2006–2007 VIGRE research fellowship \$16,000
1998–2005 NSF travel grants, amounts range \$200–\$500 with the total of \$2000
1996–1997 City of Kruševac grant for study in U.S.A. \$2,000
1995 University of Belgrade Zaharije Brkić award for the best astronomy student \$100

Synergistic activities

- April 2012 **Co-organizer**, *Carolina Dynamics Symposium*, Clemson University
March 2011 **Organizer**, *New Pedagogical Approaches in Mathematics and Science Education*, workshop, Augusta State University
2010–2013 **Coordinator**, *Mathematics colloquium*, Augusta State University
2010–2013 **Faculty member in charge** of the *Putnam* preparation sessions and contest administration, Augusta State University.

Extended professional travel

- June/July 1996 **Visiting Scholar**, *Observatoire de la Côte d’Azur*, Nice, France
Host Alessandro Morbidelli

Service

Service to the mathematics community

- 2016–present **Reviewer for:** *Mathematical Reviews*, *zbMATH*

Committee service

- 2012–2013 **Budget & university resources committee**, *Augusta State University*
2012–2013 **Research technology advisory committee**, *Augusta State University*
2012–2013 **University library committee**, *Augusta State University*
Spring 2010 **Large-scale course redesign committee**, *Georgia State University*
2006–2007 **Graduate student committee**, *University of Arizona*

Service to students

- 2011–2013 **Sponsor**, *Euclidean Society/MAA Student Chapter*

K-12 education outreach

- 2018 **Grand Award Judge (Math)**, *Intel International Science and Engineering Fair*
2012–2015 **Reader**, *College Board’s AP Calculus Exam*
2015 **Contest manager**, *United States of America Mathematical Olympiad (USAMO)*
2013–2016 **Contest manager**, *American Invitational Mathematics Examination (AIME)*
2011–2016 **Contest manager**, *American Mathematics Competitions (AMC 10/12)*
2013 **Contest manager**, *Mathematical Kangaroo*

Languages

Serbian Native

English Fluent

Russian Conversant

Mother tongue

Full professional proficiency

Limited working proficiency

Computer skills

Operating systems

OpenBSD, FreeBSD, RHEL, HPE Cray OS

Administration

network PF, DNS, DHCP, OpenSSH, IKEv2, OpenVPN, SNMP

intrusion Fail2Ban(IPS), Zeek(NIDS), Suricata(IDS/IPS), OSSEC(HIDS)

directory service LDAP, Kerberos

storage ZFS, Software RAID, Hardware RAID

file access NFS, SSHFS

scheduler Slurm Workload Manager

virtualization FreeBSD Jails, Xen, KVM

monitoring syslog-ng, Observium/LibreNMS, collectd, M/Monit

BMC IPMI, Redfish

orchestration Ansible

Programming languages

scripting sh/ksh88, sed, AWK, Makefile, bc/dc, Perl

compiled Julia (JIT), C, FORTRAN 77

interpreted Wolfram Language[®], Scheme, MATLAB[®], FORTH

markup T_EX, mdoc, XHTML, txt2tags, LilyPond

style sheet CSS

General-purpose computer algebra systems

Wolfram Mathematica[®]

Numerical computing environments

MATLAB[®], FreeMat

Memberships

American Mathematical Society