

JOHN ARLO CAINE  
Curriculum Vitæ

---

Dept. of Mathematics, 255 Hurley Hall, Notre Dame, IN 46556  
arlo.caine@nd.edu

(574) 631-7412  
<http://www.nd.edu/~jcaine1>

---

### CITIZENSHIP

- United States of America

### EDUCATION

- 2007 The University of Arizona – Thesis Advisor: Doug Pickrell, Ph.D.  
Ph.D. in Mathematics – Title: *Poisson Structures on  $U/K$  and Applications*
- 2000 California State University Hayward (now CSU East Bay)  
B.Sc. in Applied Mathematics with a minor in Computer Science

### EMPLOYMENT/PROFESSIONAL EXPERIENCE

- August 2008 – Present: Visiting Assistant Professor – University of Notre Dame
- June 2008 – July 2008: Visiting Scientist – Hausdorff Institute for Mathematics, Bonn, Germany
- September 2007 – May 2008: Postdoctoral Fellow – Max-Planck Institut für Mathematik, Bonn, Germany
- August 2001 – July 2007: Graduate Teaching/VIGRE Research Assistant – University of Arizona (UA)
- September 2000 – June 2001: Graduate Teaching Assistant – CSU Hayward (CSUH)

### PAPERS

- *Toric Poisson Structures*  
arXiv:0910.0229v1; accepted: Moscow Mathematics Journal.
- with Pickrell, D., *Homogeneous Poisson structures on symmetric spaces*  
International Mathematics Research Notices 2009, no. 1, 98–140
- *Compact symmetric spaces, triangular factorization, and Poisson geometry*  
Journal of Lie Theory, 18 (2), pp. 273-294, 2008

### RESEARCH INTERESTS

- Poisson algebraic and differential geometry, Lie theory, quantum field theory, spectral theory

### INVITED LECTURES

- Research Presentations
  - Spring 2010, Workshop on Holomorphic Poisson Geometry and Generalized Complex Geometry, Banff International Research Station, Canada
  - Fall 2009, Lie Theory Seminar, Cornell University, USA
  - Fall 2009, Special Session on Integrable Systems and Related Areas, AMS Sect. Mtg. at Penn State
  - Spring 2008, Geometry Seminar, University College Cork, Ireland
  - Spring 2008, Lie Theory Seminar, Technische Universität Darmstadt, Germany

- Colloquia and Public Lectures
  - Summer 2010, “Mathematics and Astronomy: Kepler’s Laws of Planetary Motion,” digital planetarium show for Notre Dame Math Circle Institute, USA
  - Summer 2010, “The Laudabilis Lemniscate,” special lecture for the REU at Wabash College, USA
  - Spring 2010, Colloquium, University of Wyoming, USA
  - Spring 2008, Colloquium, University College Cork, Ireland

## TEACHING EXPERIENCE

- Visiting Assistant Professor - University of Notre Dame (ND)
  - Courses Taught: Elements of Calculus for Business II, Honors Calculus I & II
- Graduate Teaching Assistant - University of Arizona (UA)
  - Courses Taught: Vector Calculus, Calculus I & II with App., Elements of Calculus, College Algebra  
Full duties of instructor of record. Recognized with the Department’s Outstanding Teaching Assistant Award - UA Spring 2006.
  - Teaching Assistant for Graduate Courses: Geometry/Topology, Complex Analysis
- Mentor for Undergraduate Research - ND and UA
  - Student: Vivian Healey, ND, 2009-2010  
Project: “Penrose and Ammann tilings: structure, dynamics, and noncommutative geometry.”  
Status: Brown University, Ph.D. Mathematics
  - Student: Sarah Pastorek, ND, 2009-2010  
Project: “Weyl’s Asymptotic Law.”  
Status: Creighton University, M.Ed. Education
  - Student: Christopher McMurdie, UA, 2003-2004  
Project: “Non-commutative Geometry, Penrose Tilings, and Algebraic K-Theory.”  
Status: M.Sc. Mathematics Univ. of Paris-Sud 2009; Univ. of Washington, Ph.D. Mathematics
- Graduate Teaching Assistant - California State University Hayward
  - Courses Taught: Elementary Algebra I & II, College Algebra, Nature of Mathematics

## SERVICE

- Organizer: Special Session on Lie Theory and Geometry, AMS Sectional Meeting at ND, November 2010
- Organizer: Mathematical Physics and Physical Mathematics Seminar at ND, 2008–2009
- Chair appointed by the Graduate Program Director, Graduate Student Committee for internal review of the UA Mathematics Graduate Program, Spring 2007
- Member appointed by the Dean of the College of Science, Committee for the five year review of UA Mathematics Department Head, 2006-2007

## COMPUTER SKILLS

- Graphic design with Adobe Illustrator & Photoshop; animation and rendering with POVray; MS Office; TeX, LaTeX; MatLab, Maple; programming in C++; web development in HTML

## LANGUAGES

- Native speaker of English; some knowledge of German and French.