

Charles F. Doran: Professional Preparation

Harvard College	Mathematics, A.B. 1992
Harvard University	Mathematics, A.M. 1993
Harvard University	Mathematics, Ph.D. 1999
The Pennsylvania State University	S. Chowla Research Postdoctoral Fellow, 1999–2000
Columbia University	VIGRE/Ritt Assistant Professor, 2000–2004

Charles F. Doran: Appointments

- Assistant Professor of Mathematics, University of Washington, September 2003–present.
- VIGRE/Ritt Assistant Professor of Mathematics, Columbia University, August 2000–August 2004.
- S. Chowla Research Postdoctoral Fellow, The Pennsylvania State University, July 1999–July 2000.

Charles F. Doran: Most Relevant Publications

- *On Graph-Theoretic Identifications of Adinkras, Supersymmetry Representations and Superfields*. With Michael Faux, Jim Gates, Tristan Hübsch, Kevin Iga, & Greg Landweber. *International Journal of Modern Physics A*, Vol. 22, No. 5 (2007) 869-930.
- *Off-Shell Supersymmetry and Filtered Clifford Supermodules*. With Michael Faux, Jim Gates, Tristan Hübsch, Kevin Iga, & Greg Landweber. (arXiv: math-ph/0603012) Submitted for publication.
- *Adinkras and the Dynamics of Superspace Prepotentials*. With Michael Faux, Jim Gates, Tristan Hübsch, Kevin Iga, & Greg Landweber. (arXiv: hep-th/0605269) To appear in *Advanced Studies in Theoretical Physics*.
- *A Counter-Example to a Putative Classification of 1-Dimensional, N-extended Supermultiplets*. With Michael Faux, Jim Gates, Tristan Hübsch, Kevin Iga, & Greg Landweber. (arXiv: hep-th/0611060) To appear in *Advanced Studies in Theoretical Physics*.
- *On the Matter of N=2 Matter*. With Michael Faux, Jim Gates, Tristan Hübsch, Kevin Iga, & Greg Landweber. To appear in *Physics Letters B*.

Charles F. Doran: Other Publications

- *Picard-Fuchs Uniformization and Modularity of the Mirror Map*, *Communications in Mathematical Physics*, 212 (2000) 625-647.
- *Algebraic and Geometric Isomonodromic Deformations*. *Journal of Differential Geometry* 59 (2001) 33-85.
- *On K3 Surfaces with Large Complex Structure*. With Adrian Clingher, *Advances in Mathematics*, 215 (2007) 504-539.
- *Algebraic Topology of Calabi-Yau Threefolds in Toric Varieties*. With John Morgan. *Geometry and Topology*, 11 (2007) 597-642.
- *Families of Quintic Calabi-Yau 3-Folds with Discrete Symmetries*. With Brian Greene and Simon Judes. To appear in *Communications in Mathematical Physics*.

Synergistic Activities: (a) Postdoctoral Scholars and Graduate Students: The PI is the faculty sponsor for VIGRE postdoctoral scholar, Aravind Asok, December 2005–present. The PI co-supervised UW physics postdoctoral scholar Chris Herzog (now on the faculty at Princeton), August 2005–July 2007; they wrote one joint paper during this time. The PI’s four graduate students are actively involved in his research and education activities in Seattle. Under his direction they are co-organizing the new Physics Learning Graduate Seminar. The PI is writing papers with his students Jacob Lewis and Ursula Whitcher, and supervised his student Andrey Novoseltsev’s project to integrate the Package for Analyzing lattice Polytopes (PALP) into William Stein’s SAGE computer algebra system. The PI’s graduate students Matt Ballard and Ursula Whitcher and postdoctoral scholar Chris Herzog attended the BIRS workshop he organized in June 2006 on “Modular Forms and String Dualities”.

(b) Undergraduate Students: The PI ran a summer 2004 VIGRE undergraduate research project with five Columbia undergraduates and two graduate students on “Reflexive Polytopes, Toric Geometry, and String Duality”. This project continued in Seattle during summer 2005 with returning Columbia Rabi Scholar Arthur Popa (now in the mathematics Ph.D. program at SUNY Stonybrook). The PI supervised three senior theses while at Columbia, and one so far at UW. These undergraduates are all now in graduate school: Chris Miller in physics at Columbia, Jacob Lewis in mathematics at UW, Spencer Greenberg in mathematics at NYU, and Noah Giansiracusa in mathematics at Brown. Each is a US citizen. The PI has applied for an NSF-CSUMS grant as co-PI with William Stein on “Undergraduate Computational Research in Arithmetic Geometry.”

(c) High School Students, Public Lectures, and Outreach: The PI featured the mathematics of 2D reflexive polytopes in interactive lectures with talented high school students at the Research Science Institute (RSI) at Caltech during the summer of 2004, at the Summer Institute for Mathematics at the University of Washington (SIMUW) over both summer 2004 and summer 2005, and at the 2006 University of Washington Math Day event. The PI also mentored two Stuyvesant High School students’ Intel Science Talent Search projects. One of these students subsequently attended Harvard College; the other was a semi-finalist in the competition. The PI frequently presents the exciting developments at the interface of string theory and mathematics to non-specialist audiences and the interested public. This includes the VIGRE lecture in Seattle “Why are mathematicians so excited about string theory?” (December 2003), colloquia at Iowa State University, the University of Oregon, and the University of Missouri on “String Theory and Mathematics,” and a Science Forum Colloquium lecture of the same name at the University of Washington (May 2005).

Charles F. Doran: Collaborators and Other Affiliations: (a) Coauthors: A. Clingher (Missouri), M. Faux (SUNY), J. Gates (Maryland), B. Greene (Columbia), M. Headrick (Brandeis), C. Herzog (Princeton), S. Hosono (Tokyo), T. Hübsch (Howard/DSU), K. Iga (Pepperdine), S. Judes (Columbia), J. Kantor (UW), G. Landweber (Bard), J. Lewis (UW), J. Morgan (Columbia), U. Whitcher (UW), T. Wiseman (Imperial).

(b) Graduate and Postdoctoral Advisors: *Ph.D.*: B. Mazur and S.-T. Yau (Harvard). *Postdoctoral:* J.-L. Brylinski (PSU), B. Greene and J. Morgan (Columbia).

(c) Thesis Students: Advisor of **four** Ph.D. theses: UW graduate students Matthew Ballard, Ursula Whitcher, Jacob Lewis, and Andrey Novoseltsev. Currently supervises **one** postgraduate-scholar in mathematics at UW: Aravind Asok, 2004 Ph.D., Princeton University.