

# Daniel Fox

# Curriculum Vitae

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## EDUCATION

- 2005 Ph.D. Duke University Department of Mathematics; Advisor: Robert Bryant
- 2014-19 **Ph.D. Candidate in Composition, CUNY Graduate Center** (start Fall 2014)
- 2011-14 Graduate Studies in Composition, Boyer College of Music, Temple University
- 2001 M.A. Duke University Department of Mathematics
- 2000 B.A. Hampshire College (Mathematics and Theoretical Physics)

## EMPLOYMENT

- 2011- Present Assistant Professor of Mathematics; Community College of Philadelphia
- 2011 Visiting Lecturer; Community College of Philadelphia
- 2010 Adjunct Faculty; Temple University
- 2010 Adjunct Faculty; Community College of Philadelphia
- 2008-09 National Science Foundation International Research Fellowship; in residence at Oxford University
- 2007-08 Visiting Assistant Professor; Mathematics Department, University of California, Irvine
- 2006-07 National Science Foundation International Research Fellowship; in residence at Oxford University
- 2005-06 Visiting Assistant Professor; Mathematics Department, University of California, Irvine
- 2000 Museum Guide, George B. Dorr Museum of Natural History, College of the Atlantic

## GRANTS AND AWARDS

- 2014 American Composers Forum, Subito Grant
- 2013 Dean's Grant, Temple University
- 2013 Presser Music Award: The Presser Foundation
- 2006-09 National Science Foundation International Research Fellowship; in residence at Oxford University; grant OISE-0502241
- 2004 Member of the Mathematical Sciences Research Institute
- 1999 REU Program at Williams College, Physics Department. Advisor: Enrique Peacock-Lopez
- 1996 Andrew Salkey Memorial Scholarship [for writing], Hampshire College

## **PAPERS DELIVERED AT CONFERENCES (MUSIC<sup>#</sup>/MATHEMATICS<sup>b</sup>)**

- 2014 THEMUS Graduate Music Conference, Temple University<sup>#</sup>
- 2014 Buffalo Graduate Music Symposium<sup>#</sup>
- 2011 Workshop on Moving Frame in Geometry, Montreal, Canada<sup>b</sup>
- 2006 Yorkshire-Durham Differential Geometry Days, York, UK<sup>b</sup>
- 2006 American Institute of Mathematics Calibrations Workshop, Palo Alto, CA<sup>b</sup>
- 2006 MISGAM Workshop Berlin, Germany<sup>b</sup>

## **TEACHING EXPERIENCE**

### **Assistant Professor - Community College of Philadelphia**

- 2010-14 Pre-Calculus I, Pre-Calculus II, Linear Math, Intermediate Algebra, Beginning Algebra, Arithmetic
- 2012 Math Club Talks: *Circle dynamics*: How rational numbers lead to total chaos; *Counting Holes in Surfaces*: The Euler characteristic

### **Course Development**

- 2012 *Math 127 Mathematics in Music* – prepared and submitted for review to Community College of Philadelphia

### **Instructor of Mathematics - Temple University**

- 2010 Pre-Calculus

### **Instructor of Mathematics - UC Irvine**

- 2005-08 Galois Theory, Honors Multivariable Calculus, Infinite Series and Linear Algebra, Calculus

### **Instructor of Mathematics - Duke University**

- 2002 Math 32L (Integral Calculus) Instructor

### **Hampshire College Summer Studies in Mathematics and Hampshire College**

- 1998 Junior Instructor, Hampshire College Summer Studies in Mathematics

## **SELECTED COMPOSITIONS**

- 2014     *Adagio*, for chamber orchestra; 2 minutes.
- Premiered by the *Temple Composers Orchestra* at The Temple Performing Arts Center, Philadelphia PA; 22 April 2014.
- 2013     *The François Vase*, for string quartet and video projection; 21 minutes.
- Premiered by the *Momenta Quartet* at The Rotunda, Philadelphia PA; 30 October 2013.
  - Performed by the *Momenta Quartet* at Soapbox Gallery, Brooklyn, NY; 1 November 2013.
- 2013     *Juego de Lunas*, for soprano, piano, flute, clarinet/bass clarinet, violin, cello, and percussion; 8 minutes. Text by Federico García Lorca.
- Premiered by the *New Music Ensemble* of Temple University at Rock Hall, Temple University; 2 December 2013.
- 2012     *Reconstruction*, a piano improvisation; 8 minutes. Original soundtrack for the limited edition video *Reconstruction* by Gabriela Vainsencher. Viewable at [gabrielavainsencher.com/reconstruction-2012](http://gabrielavainsencher.com/reconstruction-2012)
- Premiered as part of an installation at *Musée d'art moderne André Malraux, Le Havre, France*; 17 December 2012.
  - Video installation at Radiator Gallery, LIC, New York, as part of the group exhibit *A Cage Went in Search of a Bird*, curated by Sarah Walko; 10 May-19 June 2013.
- 2012     *Sonata for violin and piano*; 13 minutes.
- Performed by Noco Kawamura and Irene Moretto, Clearfield Salon, Philadelphia, PA; 18 May 2014
  - Premiered by Noco Kawamura and Irene Moretto, Rock Hall, Temple University; 1 November 2012
  - First movement premiered by Noco Kawamura and Andrew Malanowicz, Rock Hall, Temple University; 11 October 2011.
  - Performed by Noco Kawamura and Irene Moretto at the Clearfield Salon, Philadelphia PA; Scheduled for 25 May 2013.
- 2012     *Derailed* for chamber orchestra; 7 minutes.
- Premiered by the Temple Composers Orchestra, Ethical Society, Philadelphia, PA; 4 April 2012.
  - Performed by the Temple Composers Orchestra, Temple University, Ambler Campus; 13 April 2012.
- 2011     *Intermezzo*, for Magnetic Resonator Piano; 5 minutes.
- Premiered by Feifei Zhang at *Cybersounds*, 3 December 2011, Drexel University; 4 December 2011, Temple University; performed by Hunter Noack at *New Musical Interfaces*, Queen Mary, University of London, 18 April 2013.
  - Performed by Hunter Noack at the New Musical Interfaces Concert, Queen Mary, University of London, London, UK on 18 April 2013.
- 2010     *The Dead*, for SATB Choir; 5 minutes.
- Premiered by the St. Mary's Choir at the All Souls Service, St. Mary's Episcopal Church; 31 October 2010

- 2010 *If You Let A Guide Direct You Who Only Has At Heart Your Getting Lost*, for cello, viola, violin, bassoon, and clarinet; 12 minutes.
- 2010 *Lashing Out*, for solo viola; 2 minutes.
- Soundtrack for *Great Minds* stop motion video by the visual artist Gabriela Vainsencher.
  - Premiered by Kristine Yang, Klein Recital Hall, Temple University; 29 February 2012
- 2009 *Alone*, for soprano, violin, and piano; 5 minutes.
- 2009 *The Crossing* for clarinet, cello, and percussion; 6 minutes.
- Performed by Ensemble ISIS to a screening of the short film *The Crossing*, Denis Arnold Hall, University of Oxford; April 2009
- 2003 *Slender Mountain Ash*, violin duet; 4 minutes.

## **RADIO PRODUCTION**

- 2008 *Thoughts Too Definite* on KUCI 88.5FM, Irvine. I created, hosted, and produced 10 weekly episodes consisting of interviews with composers and musicians, the music they write, and the music that inspires them

## **PUBLICATIONS-PEER REVIEWED (Music<sup>#</sup>/Mathematics<sup>b</sup>)**

- 2014<sup>#</sup> *Multiple Time-Scales in Adès's Rings*, Perspectives of New Music, Volume 51 (2014)
- 2011<sup>b</sup> with Oliver Goertsches, *Higher-order conservation laws for the non-linear Poisson equation via characteristic cohomology*, Selecta Mathematica Volume 17, Issue 4 (2011), 795-831
- 2009<sup>b</sup> *Boundaries of graphs of harmonic functions*, SIGMA Volume 5 (2009), 068, 8 pages (<http://www.imath.kiev.ua/sigma>)
- 2008<sup>b</sup> with Neil Donaldson and Oliver Goertsches, *Generators for rational loop groups*, To appear in Trans. Amer. Math. Soc. (arXiv:0803.0029)
- 2008<sup>b</sup> *Cayley cones ruled by 2-planes: desingularization and implications of the twistor fibration*, Comm. Anal. Geo. Volume 16, No. 5 (2008), 937-968
- 2007<sup>b</sup> *Coassociative cones ruled by 2-planes*, Asian J. Math. Volume 11, Number 4 (2007), 535-554
- 2004<sup>b</sup> with Jennie Traschen, *Tension perturbations of black brane spacetimes*, Classical Quantum Gravity 21 (2004), no. 1, 289–306. (also available at: gr-qc/0103106)

## **MUSIC CRITICISM**

- 2013 “Death is a hotel manager,” *Title Magazine*. <http://www.title-magazine.com/2013/06/death-is-a-hotel-manager> A review of the Opera Philadelphia production of the opera *Powder Her Face* by Thomas Adès.

### **PREPRINTS (Mathematics)**

- 2013     *Conservation laws for surfaces of constant mean curvature in 3-dimensional space forms; arXiv:1309.6606*
- 2012     *Killing fields and conservation laws for rank-1 Toda field equations; arXiv:1208.2634*

### **MUSICAL EDUCATION**

- 2013     Studied composition with Jan Krzywicki
- 2011-12   Studied composition with Maurice Wright
- 2009-11   Studied composition with Andrew McPherson, Univ. of Pennsylvania and Drexel Univ.
- 2009     Studied composition with Phillip Cooke, Director of Composition, Eton College, UK
- 2009     Workshop on Film Music with Simon Lambros, University of Oxford
- 2005-07   Studied flamenco guitar with Juan del Gastor; Seville, Spain
- 1998-     Private lessons in classical guitar with Phillip de Fremmery, Mt. Holyoke College, Mt. Holyoke, MA

### **PROFESSIONAL SERVICE**

- 2012-13   Treasurer, conTemplum, Temple University
- 2012     Math 118 Alternative Committee, Community College of Philadelphia
- 2012     Textbook Editing: Helped Revise *Math 017 Notes with Exercises*
- 2011     Concert Producer, Sound Prints, Temple University
- 2003     Seminar Organizer, Seiberg-Witten Theory
- 2002     Seminar Organizer, Duke Graduate/Faculty Seminar
- 2001     Public Outreach Presentation: Counting Holes in Surfaces

### **CHOIR PERFORMANCE (TENOR)**

- 2010     *Missa Brevis for the Virgin of Guadalupe* by Scott Ordway, for SATB choir and ensemble; with the St. Mary's Choir; Philadelphia Cathedral, Philadelphia, PA; 13 December, 2010
- 2010     *The Creation* by F.J. Haydn, for SATB choir, orchestra, and soloists; University of Pennsylvania Choral Society; Irvine Auditorium, Philadelphia, PA; 10 December, 2010
- 2010     *The Dead* by Daniel Fox, for SATB choir; with the St. Mary's Choir; St. Mary's Church, Philadelphia, PA; 31 October, 2010
- 2010     *Two Motets for Candlemas* by Scott Ordway, for SATB and ensemble. With St. Mary's Choir, St. Mary's Church, Philadelphia, PA; 7 February, 2010.

### **FLAMENCO GUITAR PERFORMANCE**

- 2007     Oxford Publishing Society International Evening, Oxford, UK
- 2002     with Cai Flamenco Dance, Triangle Guitar Society End of Year Party; Cary, NC

- 2002 with Cai Flamenco Dance, La Fiesta Del Pueblo, Chapel Hill, NC
- 2001 with Cai Flamenco Dance, La Fiesta Del Pueblo, Chapel Hill, NC
- 2001 with Cai Flamenco Dance, Eno River Festival, Chapel Hill, NC

### **COMMUNITY SERVICE**

- 2010 Weekly shift at the Project Home Respite, Philadelphia, PA
- 2009 Weekly shift at The Gatehouse (<http://www.oxfordgatehouse.org/>), Oxford, UK
- 2008 Book packaging at Books Through Bars, Philadelphia, PA, June-August 2008

### **AFFILIATIONS**

- 2013-Present Society for Music Theory
- 2013-Present College Music Society
- 2013-Present Pi Kappa Lambda, National Music Honor Society
- 2011-Present conTemplum
- 2010-Present American Composers Forum
- 2000-Present American Mathematical Society
- 2007-09 Wolfson College, University of Oxford

### **MATHEMATICAL RESEARCH**

My research in differential geometry uses techniques from the theory of exterior differential systems and over determined partial differential equations. My work has focused on problems in calibrated geometry and integrable systems. The goal of the work is to synthesize methods from the theory of characteristic cohomology (an approach to conservation laws), methods from the loop group approach to integrable systems, and methods from hydrodynamic reduction to understand the integrability of the calibrated geometries associated to special holonomy.

### **REFERENCES**

Maurice Wright  
 Laura H. Carnell Professor: Music Composition  
 Boyer College of Music and Dance  
 Temple University  
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