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

2015	Adjunct Faculty, Williams College
2011-14	Assistant Professor of Mathematics; Community College of Philadelphia
2010	Adjunct Faculty; Temple University and 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

2014-19	Graduate Center Fellowship (5 Years), Graduate Center, CUNY
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[#]/MATHEMATICS[♭])

2014 THEMUS Graduate Music Conference, Temple University[#]

2014 Buffalo Graduate Music Symposium[#]

2011 Workshop on Moving Frame in Geometry, Montreal, Canada[♭]

2006 Yorkshire-Durham Differential Geometry Days, York, UK[♭]

2006 American Institute of Mathematics Calibrations Workshop, Palo Alto, CA[♭]

2006 MISGAM Workshop Berlin, Germany[♭]

TEACHING EXPERIENCE

Adjunct Faculty – Williams College

2015 *Loop d' Loop d' Loop d' Loop...* A four week project-based course on sound art and recursion, inspired by Alvin Lucier's *I am sitting in a room*

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

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$^{\#}$/Mathematics$^{\flat}$)

2014$^{\#}$ *Multiple Time-Scales in Adès's Rings*, Perspectives of New Music, Volume 51 (2014)

2011$^{\flat}$ 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$^{\flat}$ *Boundaries of graphs of harmonic functions*, SIGMA Volume 5 (2009), 068, 8 pages (http://www.imath.kiev.ua/ sigma)

2008$^{\flat}$ with Neil Donaldson and Oliver Goertsches, *Generators for rational loop groups*, To appear in Trans. Amer.
Math. Soc. (arXiv:0803.0029)

2008$^{\flat}$ *Cayley cones ruled by 2-planes: desingularization and implications of the twistor fibration*, Comm. Anal.
Geo. Volume 16, No. 5 (2008), 937-968

2007$^{\flat}$ *Coassociative cones ruled by 2-planes*, Asian J. Math. Volume 11, Number 4 (2007), 535-554

2004$^{\flat}$ 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

2014 Studied composition with Jason Eckardt

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

1998-2000 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

MUSIC RESEARCH

My research in music revolves around relations between sound and space. While I am most interested in the perception of space through sound in the contexts of both concert music and sound art, my work also deals with spatial metaphors in music, the abstract geometrical perspectives prevalent in post-tonal music theory, and the cultural and physical environments in which we make, listen to, and study music.

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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Cynthia Folio
Associate Professor of Music
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(Prepared 26 January 2015)