Curriculum Vitae

Ikemefuna Chukwuemeka Agbanusi

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PERSONAL

Born in Onitsha, Nigeria on February 16th, 1987.
Nigerian Citizen. Married. US Permanent Resident.

EDUCATION

- New Jersey Institute of Technology - BSc (*Magna Cum Laude*) 2004-2008. Applied Mathematics.
- Boston University - PhD Mathematics 2008-2013
  Dissertation Adviser: Samuel Isaacson
  .
  Thesis: *Modeling Stochastic Reaction Diffusion via Interaction Functions and Boundary Conditions*

POSITIONS HELD

- Visiting Assistant Professor, Colgate University, 2016- Present
- J.L Doob Research Assistant Professor UIUC, 2013-2016

MAJOR RESEARCH INTERESTS

Analysis of PDEs, Singular Perturbations, Infinite Dimensional Dynamical Systems, Applied Mathematics, Microlocal and Applied Harmonic Analysis

PAPERS

1. (with S. Isaacson) *A Comparison of Bimolecular Reaction Models for Stochastic Reaction Diffusion Systems*, Bulletin of Mathematical Biology, Vol 76., No. 4, pp 922-946 (2014).
2. *Rate of Convergence for Large Coupling Limits in Sobolev Spaces*, Communications in Partial Differential Equations, Vol 41, No. 11, pp 1649-1659 (2016) [arXiv:1402.3320]
3. (With J. Bronski) *Emergence of Balance from a Model of Social Dynamics*, [To appear in SIAM Applied Math] Preprint, arXiv:1601.04739
4. *Pseudo-differential Operators Transmission Problems and the Large Coupling Limit*, [Under revision] Preprint, arXiv:1509.08363

INVITED TALKS

- *A (not so) Random Walk from Stochastic to Microlocal Analysis*, Bucknell University, April 2016.
- *Laplacian plus a Large Potential*, Linear Analysis Seminar, Texas A&M University, November 2015.
- *Laplacian plus a Large Potential*, Mathematics Colloquium, Queen's University, October 2015.
- *Laplacian plus a Large Potential*, KUMU Conference, University of Kansas, April 2015

- *A Stochastic Inverse Problem*, Midwest PDE Conference, University of Illinois, October 2014

- *Rigorous Relationship between two models of Diffusion Limited Stochastic Chemical Reactions*, SIAM Life Sciences, San Diego, August 2012

- *Convergence rates of two models of a diffusion limited reaction*, Joint BU/Brown PDE Seminar, Boston, May 2012

- *Phase response curve of a square wave bursting neuron*, NJIT Math Bio Seminar, New Jersey, January 2008

LOCAL TALKS

- *Interaction Potentials and Boundary Conditions*, Harmonic Analysis and PDEs, UIUC September 2013

- *Extension Theory and Boundary Value Problems*, Student Dynamics Seminar, Boston University, April 2012

- *Weak solutions for the Navier-Stokes Equations*, Student Dynamics Seminar, Boston University, February 2011

- *Algebro-topological methods for PDEs*, Student Pure Math Seminar, Boston University, February 2011

- *Continuity method and the solution of Elliptic Partial differential equations*, Student Dynamics Seminar, Boston University, October 2010

- *Numerical methods for solving Laplace's equation on a Riemannian manifold*, Student Dynamics Seminar, Boston University, Feburary 2010

- *Maximum principles for the discrete Poisson's equation and convergence estimates*, Student Dynamics Seminar, Boston University, November 2009

- *Introduction to geometric singular perturbation and Fenichel theory*, Student Dynamics Seminar, Boston University, February 2009

- *Suspension Flows, Poincare Maps, and Floquet Multipliers*, Student Dynamics Seminar, Boston University, November 2008

- *Phase Response Curves, Student Dynamics Seminar*, Boston University, October 2008

POSTERS

- *Phase Response Curves for square wave bursting Neurons - Experimental and Numerical Approach*, 34th East Coast Nerve Net, Woods Hole Massachusetts, April 2008

MEETINGS ATTENDED

- Evolution Equations in Singular Spaces, CIRM Luminy, France, April 2016

- Geometric Analysis Summer School, Northwestern University, July 2015

- Midwest PDE Seminar, Northwestern University, May 2014

- Madison Autumn Analysis and PDE Workshop, University of Wisconsin, November 2012

- Monte Carlo Simulations in the Physical and Biological Sciences, ICERM, Brown University, November 2012

- Numerical Days, UMass Darthmouth, April 2011

OTHER RESEARCH EXPERIENCE

Undergraduate Biology and Mathematics Training Program (UBMTP), NJIT Summer 2007 - Fall 2007

TEACHING EXPERIENCE

- Colgate University
  - Instructor Introductory Statistics, Fall 2017
  - Instructor Ordinary Differential Equations, Spring 2017, Fall 2017
  - Instructor, Single Variable Calculus, Fall 2016, Spring 2017
  - Instructor, Multi-Variable Calculus, Fall 2016
- UIUC
  - Instructor, Business Calculus, Spring 2016
  - Instructor, Introduction to Dynamical Systems and Chaos, Spring 2015
  - Instructor, Ordinary Differential Equations, Fall 2014, Fall 2015
  - Instructor, Introduction to Partial Differential Equations, Fall 2013, Spring 2014
  - Instructor, Elementary Real Analysis, Spring 2014
- Boston University
  - Instructor, Calculus II, Summer 2013
  - Instructor, Ordinary Differential Equations, Summer 2013
  - Teaching Fellow/Assistant, Linear Algebra, Spring 2013
  - Teaching Fellow/Assistant, Calculus for Social Sciences, Spring 2013
  - Teaching Fellow/Assistant, Calculus II (Integral Calculus), Fall 2012
  - Grading, Graduate Differential Topology, Fall 2011
  - Grading, Graduate Real Analysis, Spring 2010
  - Teaching Fellow/Assistant, Multivariable Calculus. Fall 2010
  - Teaching Fellow/Assistant, Calculus for Social Sciences, Spring 2010
  - Teaching Fellow/Assistant, Calculus I (Differential Calculus), Fall 2009
  - Instructor, Calculus II (Integral Calculus), Summer 2009

PROFESSIONAL SERVICE

- Reviewer for Zentralblatt Math

OTHER SERVICE

- Supervising IGL (Illinois Geometry Lab) project - *Introduction to Stochastic Simulation Algorithms*, Spring 2016
- Supervising graduate reading course in dynamical systems, Spring 2016
- Judge for ICTM (Illinois Council of Teachers of Mathematics) State Finals, Spring 2015, Spring 2016
- Supervised "Honors Pass" project, *Dynamical Ssytems in Neuroscience*, for Daryl Drake

HONORS AND AWARDS

- Distinguished Teaching Award in Mathematics for Non-Tenure-Track Faculty, UIUC, 2016
- List of Teachers Ranked as Excellent by their Students, UIUC, Fall 2015
- Outstanding Teaching Fellow Award from Graduate School of Arts and Sciences, Boston University, 2011
- Deans Fellowship, Boston University, September 2008–May 2009
- Albert Dorman Honors Scholarship, NJIT
- Departmental Award for Excellence, NJIT, 2006-2008