

# Doctoral Degrees Conferred 2007–2008

## Supplementary List

The following list supplements the list of thesis titles published in the February 2009 *Notices*, pages 281–301.

### ALABAMA

#### University of Alabama at Birmingham (3)

##### BIostatISTICS

- Ayanlowo, Ayanbola*, Design of Phase II & III clinical trials.  
*Jones, Tamekia*, A statistical approach identifying and limiting the effect of influential observations.  
*Sawrie, David*, Preemptive power for the consulting statistician: novel application of internal pilot design and information based monitoring systems.

### CALIFORNIA

#### Naval Postgraduate School (1)

##### APPLIED MATHEMATICS

- Phillips, Donovan*, Mathematical modeling and optimal control of battlefield information flow.

#### University of California, Berkeley (24)

##### MATHEMATICS

- Al-Aidroos, Jameel*, Perfect pairings in the tautological rings of the moduli spaces of stable curves.  
*Berg, Jennifer Danae*, On the center of the Lie superalgebra  $q(n)^{(2)}$ .  
*Burstein, Richard David*, Hadamard subfactors of Bisch-Haagerup type.  
*Chen, Tianbing*, Piecewise polynomial discretization and Krylov-accelerated multigrid for elliptic interface problems.  
*Clayton, Aubrey*, Mutation-selection balance for polynomial selection costs and matrix-valued orthogonal polynomial.  
*Closson, Erik*, The solovay sequence in derived models associated to mice.  
*Courtney, Dennis*, Asymptotic lifts of UCP semigroups.  
*Dan-Cohen, Elizabeth*, Structure of root-reductive Lie algebras.  
*Fern, Jesse*, Calculations of quantum error correction and fault tolerance thresholds.  
*Freeman, David Stephen*, Constructing Abelian varieties for pairing-based cryptography.  
*Gray, Aaron*, Functoriality of the logarithmic Riemann-Hilbert.  
*Han, Fei*, Supersymmetric QFTs, super loop spaces and Bismut-Chern character.  
*Huggins, Peter*, Polytopes in computational biology.  
*Jetchev, Dimitar*, CM points, Selmer groups, component groups and Euler systems.

*Kirkpatrick, Kay*, Rigorous derivation of the Landau equation in the weak coupling limit.

*Lebow, Eli*, Embedded contact homology of 2-torus bundles over the circle.

*Levine, Lionel*, Limit theorems for internal aggregation models.

*Mihaescu, Radu*, Distance methods in phylogeny.

*Morton, Jason*, Geometry of conditional independence.

*Nachmias, Asaf*, Percolation on finite groups.

*Schlutenberg, Farmer*, Measures in mice.

*Tingley, Peter*, Some results on the crystal commutator and affine  $sl(n)$  crystals.

*Yao, Jiangang*, Codimension one embedding of manifolds.

*Zywina, David*, The large sieve and Galois representations.

#### University of California, Riverside (4)

##### MATHEMATICS

- McLoughlin, Peter*, When is the adjoint of a finite-rank minimal projection also minimal.  
*Troutman, Tiffany*, Infinity-harmonic functions, maps and morphisms of Riemannian manifolds.  
*Wrkich, James*, Solvability of some inhomogeneous parabolic.  
*Yao, Chui Zhi*, Discrete logarithm and related problems in cryptography.

#### University of California, Santa Barbara (10)

##### MATHEMATICS

- Barbaro, Alethea*, An interacting particle model for the migrations of pelagic fish.  
*Haynal, Heidi*, PI degree parity in  $q$ -skew polynomial rings.  
*Kolpas, Allison*, Coarse-grained analysis of collective motion in animal groups.  
*Learned, John*, Graphical methods in representation theory.  
*Levitt, Rena*, Biautomaticity and nonpositively curved spaces.  
*Macauley, Matthew*, Coexter theory and discrete dynamical systems.  
*Rehkopf, Edward*, Reduction of quadratic forms over polynomial rings.  
*Sentinella, Robert*, Multi-scale modeling of liquid crystalline polymers.  
*Trethewey, Peterson*, Conformal curvature and one-relator group theory.  
*Wiley, Chad*, Nugatory crossings in closed 3-braid diagrams.

### COLORADO

#### University of Colorado, Boulder (10)

##### APPLIED MATHEMATICS

- Kurcz, Christopher*, Fast convolutions with Helmholtz Green's functions and radially symmetric band-limited kernels.  
*Lim, Jisun*, The qualitative study of a chemical reaction diffusion system and some integral equations.

*Mao, Wenjin*, Dimension jumping and auxiliary variable techniques for Markov chain Monte Carlo algorithms.

*Nolting, Joshua*, Efficiency-based local adaptive refinement for FOSLS finite elements.

*Pietarila-Graham, Jonathan*, Regularizations as subgrid models for turbulent flows.

*Piret, Cecile*, Analytical and numerical advances in radial basis functions.

*Rajsiraphisal, Thaned*, A study of the variability of the North Indian ocean.

*Wang, Jian*, Recovering Bayesian networks with applications to gene regulatory networks.

*Watson, Michael*, A study of rotationally constrained convection in tall annular geometries.

*Zuev, Julia*, Recent advances in numerical PDEs.

## University of Denver (1)

MATHEMATICS

*Nagrath, Aditya*, Properties of scattered lattices, and the introduction of a meet semilattice duality.

## CONNECTICUT

### Wesleyan University (1)

MATHEMATICS AND COMPUTER SCIENCE

*Babichev, Andrey*, Speedups of ergodic group extensions.

### Yale University (4)

MATHEMATICS

*Liu, Qihou*, On the colored Jones polynomials of certain links.

*Maitra, Rachel*, Mathematically rigorous quantum field theories with a non-linear normal ordering of the Hamiltonian operator.

*Patnaik, Manish*, Geometry of loop Einstein series.

*Zhu, Minxian*, Vertex operator algebras arising from affine Lie algebras.

## IDAHO

### Idaho State University (1)

MATHEMATICS

*Lundeen, Suzanne*, The finite reflection group  $H_4$ .

## ILLINOIS

### Illinois State University (5)

MATHEMATICS

*Hofbauer, Pamela*, Characterizing high school students' understanding of the purpose of graphical representations.

*Knapp, Andrea*, Prompting mathematics teacher development through dynamic discourse.

*Naresh, Nirmala*, Workplace mathematics of the bus conductors in Chennai, India.

*Simmons, Eugene*, The effects of using a QAR reading strategy to improve students' conceptual understanding.

*Thompson, Kevin*, Students' understanding of trigonometry enhanced through the use of a real word problem: improving the instructional sequence.

## KENTUCKY

### University of Kentucky (5)

STATISTICS

*Hersh, Matt*, Identification of multiple functional peaks resulting from a common peak shape function.

*Li, Hao*, Identifying gene expression patterns in oligonucleotide microarray experiments.

*McClintock, Scott*, Stochastic securities market model with no short selling.

*Vandyke, Rhonda*, Classification of self-modeling regressions.

*Zhu, Hua*, Smoothed empirical likelihood for quantiles and some variations/extension of empirical likelihood for Buckley-James estimator.

## MARYLAND

### John Hopkins University (1)

APPLIED MATHEMATICS AND STATISTICS

*Tan, Liang*, Numerical methods for multi-dimensional American options.

### University of Maryland (23)

APPLIED MATHEMATICS AND COMPUTER SCIENCE

*Bard, George*, Algorithms for solving linear and polynomial systems over finite fields with applications to cryptanalysis.

*Chakraborty, Purnendu*, Molecular dynamic studies of organic coated nano aerosols.

*Cheng, Bin*, On the rotational shallow water and Euler equations.

*Finkbiner, Amy*, Global phenomena from local rules: Peer-to-peer networks and discrete crystal steps.

*Ganesh, Nadarajasundaram*, Small area estimation and prediction problems.

*Heath, Jeffery*, Global optimization of finite mixture models.

*Johnson, Hunter*, Definable families of finite VC dimension.

*Li, Huilin*, Small area estimation: an empirical best linear unbiased prediction approach.

*Long, Nicholas*, Involutions of shift of finite type: fixed point shifts, orbit quotients, and the dimension representation.

*Lu, Guanhua*, Asymptotic theory in multiple-sample semiparametric density ratio models and its applications to mortality forecasting.

*Mai, Yabing*, Comparing survival distributions in the presence of dependent censoring: asymptotic validity and bias corrections of the Logrank test.

*Min, Min*, Asymptotic normality in generalized linear mixed models.

*O'Hara, Michael*, Adiabatic quantum computation: noise in the adiabatic theorem and using the Jordan-Wigner transform to find effective Hamiltonians.

*Okta, Onur*, Frame quantization theory and equiangular tight frames.

*Smetaniouk, Taras*, Pricing variance derivatives using hybrid models with stochastic interest rates.

*Tate, Calandra*, An investigation of the relationship between automated machine evaluation metrics and user performance on an information extraction task.

*Truman, Kathryn*, Analysis and extension of non-communative NTRU.

*Wei, Dongming*, Critical thresholds in Eulerian dynamics.

*Wen, Shihua*, Semi-parametric cluster detection.

*Widemann, David*, Dimensionality reduction for hyperspectral data.

*Yu, Tinghui*, Estimation theory of a location parameter in small samples.

*Zhang, Chensong*, Adaptive finite element methods for variational inequalities: theory and applications in finance.

*Zhong, Weigang*, Entropy stable approximations of nonlinear conservation laws and related fluid equations.

## MASSACHUSETTS

### Harvard University (1)

#### MATHEMATICS

*Paur, Katherine*, Modeling the effects of population structure and vaccination strategy on infectious diseases.

## MINNESOTA

### University of Minnesota (13)

#### SCHOOL OF MATHEMATICS

*Bemis, Christopher*, Modeling and optimization of mortgage loan portfolios.

*Chen, Yanlai*, An adaptive high order discontinuous Galerkin method with error control for the Hamilton-Jacobi equations.

*Chung, Kuerak*, Based Cacti.

*Jung, Yoon Mo*, Variational modeling, analysis, and computing of image and visual segmentation problems.

*Kim, Sangwook*, Topology of diagonal arrangements and flag enumerations of matroid base polytopes.

*Kontovourkis, Michalis*, On elliptic equations with low-regularity divergence-free drift terms and the steady-state Navier-Stokes equation in higher dimensions.

*Kurkcu, Harun*, High-frequency scattering by infinite rough surfaces.

*Mahajan, Deepa*, Boundary-conforming discontinuous Galerkin methods via extension from subdomains.

*Maxwell, Molly*, Enumerating self-dual spanning trees and self-dual matroid bases.

*Phan, Tuoc Van*, On global existence of solutions to a cross-diffusion system.

*Weimerskirch, Michael*, On infinite indistinguishability quotient monoids in misere impartial combinatorial games.

*Zhang, Hang*, Static and dynamical problems of hydrogel swelling: modeling and analysis.

*Zuniga, Jose Javier*, Compactifications of moduli spaces.

## NEW HAMPSHIRE

### Dartmouth College (6)

#### MATHEMATICS

*Andersen, Brooke*, Distinguishing complete sets with respect to strong notions of reducibility.

*Bayless, Jonathan*, Carmichael's conjecture and the unit group function.

*Bourke, John*, Results of off-branch numbers.

*Henrich, Allison*, A sequence of degree one Vassiliev invariants for virtual knots.

*Malandro, Martin*, Fast Fourier transforms for inverse semigroups.

*Pollack, Paul*, Prime numbers and prime polynomials.

## NEW JERSEY

### Rutgers University - Newark (2)

#### MATHEMATICS AND COMPUTER SCIENCE

*McDonald, Keith Tim*, On  $p$ -adic zeta functions and their derivatives at  $s=0$ .

*Min, Honglin*, Hyperbolic graphs of surface groups.

### Rutgers The State University of New Jersey (11)

#### MATHEMATICS

*Bao, ShiTing*, Gradient estimates for the conductivity problems.

*Coskey, Samuel*, Descriptive aspects of torsion-free abelian groups.

*Costello, Kevin*, Ranks of random matrices and graphs.

*Duffy, Colleen*, Graded traces and irreducible representations of  $\text{Aut}(A(\Gamma))$  acting on graded  $A(\Gamma)$  and  $A(\Gamma)$  dual.

*Guo, Ren*, Parameterizations of Teichmüller spaces of surfaces with boundary.

*Hansen, Derek*, Asymptotic perturbation formulas for the effect of scattering by small objects: an analysis over a broad band of frequencies.

*Kennedy, Benjamin*, Differential delay equations with several fixed delays.

*Lins, Brian*, Asymptotic behavior and Denjoy-Wolff theorems for Hilbert metric nonexpansive maps.

*Pudwell, Lara*, Enumerative schemes for pattern-avoiding words and permutations.

*Speck, Jared*, On the questions of local and global existence for the hyperbolic PDEs occurring in some relativistic theories of gravity and electromagnetism.

*Stucchio, Christopher*, Selected problems in quantum mechanics.

## NEW YORK

### Columbia University (3)

#### BIostatistics

*Chang, Chung*, Statistical analysis for neuroimaging data.

*Xu, Qiang*, Existing approaches and a new weighted method for cox regression in the presence of missing covariates.

*Zhang, Hui*, Handling missing data without specifying auxiliary models.

## PENNSYLVANIA

### University of Pennsylvania (2)

#### STATISTICS

*Ghia, Kartikeya*, Statistical applications in finance: permutation tests, regression trees, and normality tests.

*Shirley, Kenneth*, Hidden Markov models for alcoholism treatment trial data.

### University of Pittsburgh (3)

#### STATISTICS

*Iosif, Ana-Maria*, Analysis of longitudinal random length data.

*Lopez, Adriana*, Markov models for longitudinal course of youth bipolar disorder.

*Wu, Qiang*, Clustering methodologies with applications to integrative analyses of post-mortem tissue studies in schizophrenia.

## UTAH

### Utah State University (1)

#### MATHEMATICS AND STATISTICS

*Cook, Lawrence*, Small sample methods for the analysis of clustered binary data.