

Kathleen Holm

Environmental Protection Agency
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OBJECTIVE:

To obtain an interdisciplinary research position which employs techniques from applied mathematics and statistics to solve important problems.

Technical Summary

- Research Interests: Mathematical and statistical modelling, exposure reconstruction, inverse problems, optimal design methods.
- Languages: Matlab, R, SAS, C++
- Academic Societies: Society for Industrial and Applied Mathematics, American Statistical Association, American Mathematical Society

Education

- **North Carolina State University**
PhD Biomathematics, GPA: 3.792
PhD minor Statistics
Aug 2007 - July 2011
Lord/CRSC Fellowship, Center for Research in Scientific Computation, 2010 - 2011
Lucas Outstanding Service Award, 2008 - 2009
- **University of Arizona**
MS Applied Mathematics, GPA: 3.333
Aug 2004 - May 2007
NSF IGERT Partial Fellowship, Biology, Mathematics, and Physics Initiative, 2004 - 2005
- **Colorado State University**
BS Mathematics, GPA: 3.756
Aug 2000 - Dec 2003
Graduated Cum Laude
Magnus Scholarship, Mathematics Department, 2003 - 2004
Phi Kappa Phi Natural Science Honored Junior, College of Natural Science, 2003
- Publications
 - H.T. Banks, K. Holm and F. Kappel, Comparison of Optimal Design Methods in Inverse Problems, *Inverse Problems*, **27** (2011), 075002, 1-31.
 - H.T. Banks, K. Holm and D. Robbins, Standard Error Computations for Uncertainty Quantification in Inverse Problems: Asymptotic Theory vs. Bootstrapping, *Mathematical and Computer Modelling*, **52** (2010), 1610-1625.
 - H.T. Banks, K. Holm, N.C. Wanner, A. Cintrón-Arias, G.M. Kepler, and J.D. Wetherington. A Mathematical Model for the First-Pass Dynamics of Antibiotics Acting on the Cardiovascular System, *Mathematical and Computer Modelling*, **50** (2009), 959-974.
 - R.D. Beger, K.J. Holm, D.A. Buzatu, and J.G. Wilkes, Using Simulated 2D ¹³C NMR Nearest Neighbor Connectivity Spectral Data Patterns to Model a Diverse Set of Estrogens, *Internet Electronic Journal of Molecular Design*, **2** (2003), 435-453.

Career Overview

- **U.S. Environmental Protection Agency**, Research Triangle Park, NC
August 2011 - present
National Exposure Research Lab, Human Exposure and Atmospheric Sciences Division, Exposure and Dose Research Branch
 - Post-Doctoral Statistician
- **North Carolina State University**, Raleigh, NC
Aug 2007 - July 2011
Biomathematics Graduate Program
 - Graduate Research Assistant
 - Center for Quantitative Science in BioMedicine (CQSB) Graduate Pre-Doctoral Fellow
Spring 2008 - Summer 2011
 - Graduate Teaching Assistant
 - Instructor Assistant, Spring 2008
Introduction to Statistics, ST 311
 - Instructor Assistant, Fall 2007
Modeling of Biological Systems, BMA 567
Outstanding Teaching Assistant Award, University Graduate Student Association
- **University of Arizona**, Tucson, AZ
Aug 2005 - Aug 2007
Mathematics Department
 - Graduate Teaching Assistant
 - Instructor, Summer Session II 2007
Introduction to Ordinary Differential Equations, Math 254
 - Instructor Assistant, Spring 2007
Introduction to Ordinary Differential Equations, Math 254
 - Instructor, Fall 2006
Math in Modern Society, Math 105
 - Instructor, Fall 2005 and Spring 2006
College Algebra, Math 110
- **International Business Machines**, Tucson, AZ
Jan 2004 - Aug 2004
Storage Systems Performance
 - Developed a program using Excel macros to extract useful statistical information from the performance output of data storage machines.
- **Los Alamos National Laboratory**, Los Alamos, NM
Summer 2003
Biosciences Division, Research Experience for Undergraduates
 - Developed an algorithm to find statistics of a pattern on a character string with application to patterns found in the amino acids in a family of proteins.
- **Colorado State University**, Ft. Collins, CO
2001 - 2003
Mathematics Department
 - Instructor Assistant for both Calculus and Real Analysis, grader.

- **FDA National Center for Toxicological Research**, Jefferson, AR
Summer 2002
Division of Chemistry, Internship
 - Correlated NMR spectra of estrogen compounds to relative binding affinity using Multiple Linear Regression.