

An Overview of the Mathematical Research of Douglas B. Meade

URL: <http://www.math.sc.edu/~meade/dean2002/>

1/17/2002

Dean's Presentation

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Areas of Expertise

- Mathematical Modeling
- Ordinary Differential Equations
- Partial Differential Equations
- Numerical Analysis
- Scientific and Parallel Computation
- Computer Algebra

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Current Projects

- Interface Problems
- Mathematical Biology
- Computational Number Theory
- Computer Algebra

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Interface Problems

- Electromagnetic Scattering on Unbounded Domains [\[PDF\]](#)
 - ◆ Funding
 - ◆ NSF (1994-1997)
 - ◆ Collaborators
 - ◆ Andrew Peterson (ECE, Georgia Tech)
 - ◆ Kevin Webb (ECE, Purdue)
 - ◆ Student
 - ◆ Catherine Piellusch-Castle (M.S., Math, USC, 1996)

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Interface Problems

- Gravitational Forces in Electrostatics
 - ◆ Funding
 - ◆ USC R & PS (in preparation)
 - ◆ Collaborators
 - ◆ Timir Datta (Physics, USC)
 - ◆ Ruslan Prozorov (Physics, USC)
 - ◆ Student
 - ◆ Arpana Desai (M.S., Math, USC, current)

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Mathematical Biology

- Nonlinear Diffusion Models
 - ◆ Collaborator
 - ◆ Fabio Milner (Math, Purdue)
- Vaccination Models [\[PDF\]](#)
 - ◆ Funding
 - ◆ SC EPSCoR (summer 2001)
 - ◆ Student
 - ◆ Katie Spurrier (B.S., Math, USC, current)

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Computational Number Theory

- Factorization Algorithms for Lacunary Polynomials [\[PDF\]](#) [\[Maple\]](#)
 - ◆ Funding
 - ◆ NSF (submitted)
 - ◆ NSA (submitted)
 - ◆ Collaborator
 - ◆ Michael Filaseta (Math, USC)
 - ◆ Student
 - ◆ Jonathan Mason (B.S., Math, USC, current)

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Computer Algebra

- [Maple Application Center](#)
 - ◆ [ODE PowerTool](#)
 - ◆ Shooting Method for 2-Point BVPs
 - ◆ Hankel Functions
- Book
 - ◆ Engineer's Toolkit: Maple V for Engineers (with Etan Bourkoff), AWL, 1998
- Textbook Supplements
 - ◆ Calculus
 - ◆ Linear Algebra
 - ◆ Differential Equations
- Training Workshops

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