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EDUCATION

Current **Ph.D. program in Applied Mathematics**, University of Delaware
Advisor: Dr. John A. Pelesko

MAY 2010 **M.Sc. in Applied Mathematics**, University of Delaware

MAY 2008 **B.Sc. in Mathematics with Honors**, Millersville University
MAGNA CUM LAUDE | Focus: Applied Mathematics
Honors Thesis: *Numerical Approximations of Center Manifolds* | Advisor: Dr. Z. Shao

AWARDS & HONORS

Current **NSF Graduate Research Fellowship**, University of Delaware

2012 **Winter Research Review Travel Award**, University of Delaware

2004–2008 **Edna H. Myers Mathematics Scholarship**, Millersville University

2004–2008 **Millar–Kraybill Academic Scholarship**, Millersville University

PUBLICATIONS

- [BSS⁺12] N. D. BRUBAKER, J. I. SIDDIQUE, E. SABO, R. DEATON AND J. A. PELESKO, [Refinements to the Study of Electrostatic Deflections: Theory and Experiment](#), *submitted (2012)*, 23 pages.
- [BL12] N. D. BRUBAKER AND A. E. LINDSAY, [The onset of multivalued solutions of a prescribed mean curvature equation with singular nonlinearity](#), *submitted (2012)*, 32 pages (arXiv).
- [BP12] N. D. BRUBAKER AND J. A. PELESKO, [Analysis of a one-dimensional prescribed mean curvature equation arising in the study of MEMS](#), *Nonlinear Anal.* (2012), DOI: [10.1016/j.na.2012.04.025](https://doi.org/10.1016/j.na.2012.04.025).
- [BP11] N. D. BRUBAKER AND J. A. PELESKO, [Non-linear effects on canonical MEMS models](#), *European J. Appl. Math.*, **22** (2011), no. 5, 455–470, DOI: [10.1017/s0956792511000180](https://doi.org/10.1017/s0956792511000180), © Cambridge U. Press.
- [BCE⁺08] N. D. BRUBAKER, S. CARTER, S. M. EVANS, D. E. KRAVATZ JR., S. LINN, S. W. PEURIFOY AND R. WALKER, [Double Bubble Experiments in the Three-Torus](#), *Math Horizons*, April (2008), 18–21.

PRESENTATIONS

- “Electrostatic Deflections in Microelectromechanical Systems”, Analysis and Its Applications Seminar, University of Arizona (April 3, 2012). Invited Talk.
- “Bifurcations of a Prescribed Mean Curvature Equation”, 2012 Graduate Student Winter Research Symposium, University of Delaware (February 10, 2011). Poster.
- “Mathematical Modeling of MEMS”, Millersville University and F&M College Joint Math Colloquium, Millersville (October 6, 2011). Talk.

“The Study of Electrostatic Deflections”, 7th International Congress on Industrial and Applied Mathematics, Vancouver (July 19, 2011). Talk.

“Refinements to Pull-in Voltage Predictions”, 2011 Graduate Student Winter Research Symposium, University of Delaware (February 11, 2011). Talk.

“Electrostatic Deflections of an Elastic Membrane”, SIAM Annual Meeting, Pittsburgh (July 2010). Poster.

“A Corrected Model for Electrostatic Deflections of an Elastic Membrane”, SIAM/MMA Mid-Atlantic Regional Applied Mathematics Student Conference (March 20, 2010). Talk.

“Research at the University of Delaware”, EPaDel Careers in Math Conference. Millersville University (October 4, 2009). Invited Talk.

“Perturbed Solutions of Electrostatic Deflections of an Elastic Membrane”, Department of Mathematical Sciences Summer Student Research Symposium (August 14, 2009). Talk.

“Modeling Electrostatic Deflections of an Elastic Membrane”, Brown-bag Lunch Seminar, University of Delaware (July 29, 2009). Talk.

“Double Bubble Experiments in the 3-Torus”, The 22nd Annual Student Mathematics Conference, Moravian College (February 16, 2008). Talk.

“Bubbles and the Three-Torus”, The Millersville University School of Science and Mathematics Student Research Poster Display (Fall 2007). Poster Presentation.

“Formation and Dynamics of Sand Dunes”, VIGRE Summer Program Final Reports (July 26, 2007). Talk.

RESEARCH EXPERIENCE

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| SUMMER 2009 | Groups Exploring the Mathematical Sciences (GEMS) Fellow University of Delaware <i>Researched the effects of electrostatic forces on an elastic membrane.</i> Advisor: Dr. John A. Pelesko |
| SPRING 2008 | Honors Research Millersville University <i>Developed an algorithm to numerically approximate of center manifolds with a stable, unstable and center part.</i> Advisor: Dr. Zhoude Shao |
| SUMMER 2007 | VIGRE Summer Program on Mathematical Modeling University of Arizona <i>Modeled the formation and dynamics of sand dunes due to various physical processes</i> Advisors: Dr. Predrag Punosevac and Dr. Joceline Lega |
| SPRING 2007 | Undergraduate Research Millersville University <i>Researched the existence and stability of conjectured double bubbles of the three torus</i> Advisors: Dr. Ron Umble and Dr. Frank Morgan |

TEACHING EXPERIENCE

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| SPRING 2010 | Teaching Assistant for Math 241 Analytic Geometry and Calculus A A first calculus course for science majors |
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| | Resposibilites included leading discussion sections, holding office hours, writing quizzes, grading and proctoring exams |
| WINTER 2010 | Instructor for MATH113: Contemporary Mathematics An alternative introductory mathematics course for liberal arts majors Resposibilites included preparing lectures, making exams and all handling all other things required by the course |
| FALL 2009 | Teaching Assistant for MATH512: Contemoprary Applications of Mathematics A capstone course for students in the sciences Resposibilites included holding lab and office hours, guiding student research projects and critiquing presentations |
| FALL 2008 | Teaching Assistant for MATH221: Calculus I A first calculus course for non-science majors Resposibilites included leading discussion sections, holding office hours, writing quizzes, grading and proctoring exams |

PROFESSIONAL ACTIVITIES

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| <i>Currently</i> | Member, Society for Industrial and Applied Mathematics (SIAM) |
| 2010 | Vice President, University of Delaware Student Chapter of SIAM |