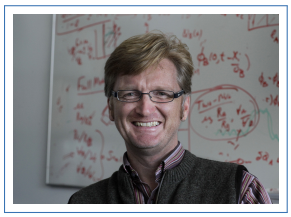

John B. Geddes Ph.D.

Curriculum Vitae

Education

1990–1994 **Ph.D. Applied Mathematics**,
University of Arizona, Tucson, AZ.

1987–1990 **B.Sc. Honours (1st Class) Computational Physics**,
Heriot-Watt University, Edinburgh, Scotland.

Professional Work Experience

2008– **Professor of Applied Mathematics**,
Olin College of Engineering, Needham, MA.

2010–2011 **Interim Associate Dean for Faculty Affairs and Research**,
Olin College of Engineering, Needham, MA.

2009–2014 **Visiting Research Fellow**,
Institute for Complex Systems and Mathematical Biology,
University of Aberdeen, Aberdeen, Scotland.

2003–2008 **Associate Professor of Mathematics**,
Olin College of Engineering, Needham, MA.

1998–2003 **Assistant Professor of Mathematics**,
Department of Mathematics and Statistics,
University of New Hampshire, Durham, NH.

1996–1998 **Assistant Professor**,
Ramapo College of New Jersey, Mahwah, NJ.

Olin College of Engineering – Needham MA – USA
+1 781 292 2555 • *john.geddes@olin.edu*
www.johnbgeddes.wordpress.com

Awards and Recognition

2012 **The 300 Best Professors**, *Princeton Review*.

2000 **Outstanding Teaching Award**, *University of New Hampshire*.

1990 **Watt-Club Medal for Excellence in Physics**, *Heriot-Watt University*.

Courses Taught

2003– **Olin College of Engineering**.

- Introduction to Sensors, Instrumentation, and Measurement
- Senior Capstone Program in Engineering
- Quantitative Engineering Analysis I & II
- Signals and Systems
- Dynamics
- Modeling and Simulation of the Physical World I & II
- Linearity I & II
- Single Variable Calculus
- Multi-Variable Calculus
- Linear Algebra
- Ordinary Differential Equations
- Partial Differential Equations
- Nonlinear Dynamics and Chaos
- 6 Theorems That Changed The World
- Transport in Biological Systems
- Numerical Methods and Scientific Computing
- Introduction to Optimization

1998–2003 **University of New Hampshire**.

- Numerical Analysis
- Scientific Computing
- Linearity I & II
- Ordinary Differential Equations
- Partial Differential Equations
- Multi-variable Calculus
- Single-variable Calculus
- Linear Algebra
- Applied Complex Analysis

1996–1998 **Ramapo College of New Jersey**.

- Chaos and Fractals
- Developmental Mathematics
- Energy and Society
- Basic Mathematics
- Elementary Algebra
- College Algebra
- Mathematics with Applications for Business Majors

Service

College Committees.

- Reappointment and Promotion Committee
- Reappointment and Promotion Task Force
- Faculty Search Commitee
- Academic Recommendation Board
- Family Leave Policy Committee
- Competencies Implementation Committee
- Pedagogical Innovations Task Force
- Engineering Program Group
- Independent Study and Undergraduate Review Board
- Curricular Effectiveness Committee
- Budget and Finance Committee

Professional Society.

- Society for Industrial and Applied Mathematics Education Committee
- Society for Industrial and Applied Mathematics Professional Development Committee
- Editorial Board for SIAM Undergraduate Research Online

Reviewer.

- Physical Review Letters
- Physical Review E
- Annals of Biomedical Engineering
- Mathematical Medicine and Biology
- Mathematical Biosciences
- SIAM Journal on Applied Dynamical Systems
- National Science Foundation
- National Institutes of Health

College Activities.

- Candidates Weekend
- Family Weekend
- Orientation
- Soccer Coach
- Storytelling for Students

Undergraduate Student Research

2016 **Kaitlyn Keil, Rachel Yang, Rebecca Jordan, Mary Keenan**, *Navigation technology for blind sailors*.

2015 **Halley Pollock-Muskin, Cecilia Diehl, Nora Mohamed**, *Multiple equilibrium blood flow experiments*.

2013 **Michael Resnick and Cameron Anderson**, *Blood Clot Dissolution Modeling*.

2013 **Deborah Hellen and Erika Weiler**, *Spontaneous Oscillations in Stratified Flow*.

2012 **Kevin O'Toole, Morgan Zhu, Katherine Maschan, and Diana Vermilya**, *Structural Adaptation of Microvessels*.

2012 **Gregory Edelstein and Kyle McConnaughey**, *Dynamics of Network Flows*.

2011 **Larissa Little, Patrick Varin, Jea Young Park, and Elizabeth Threlkeld**, *Structural Adaptation of Microvessels*.

2011 **Casey Karst**, *Multiple Equilibria in Stratified Flow*.

2010 **Margaret-Ann Seger and Elizabeth Threlkeld**, *Structural Adaptation of Microvessels*.

2009 **Benjamin Small and Rachel Nancollas**, *Nonlinear Dynamics of Microvascular Blood Flow*.

2008 **David Gardner, Yiyang Li, and Benjamin Small**, *Multiple Equilibria in Microvascular Networks*.

2007 **Ilari Shafer, Morgan Boes, and Rachel Nancollas**, *Geometry and Stability of Microvessels*.

2006 **David Gebhart and Kelly Butcher**, *Microvascular Blood Flow - simulation and experiment*.

2005 **Nathaniel J. Karst**, *The Onset of Oscillations in Microvascular Blood Flow*.

2002 **Molly Goulet and David Cerra**, *An investigation of first-order delay equations, and their application to microvascular blood flow*.

2001 **Annie Holtzmann and Dan Shiber**, *A numerical method for the simulation of the analytical centrifuge equations*.

2000 **Matthew Beauregard**, *A numerical method for the simulation of the actively mode-locked laser equations*.

1999 **John Perreault**, *Pulse dynamics in a Q-switched laser*.

Graduate Student Research

2007–2009 **Ekta Suman**, *Mathematical and experimental analysis of steady states in a simple microvascular network system*, M. S. Chemical Engineering, University of New Hampshire.

2002–2005 **Fan Wu**, *Nonlinear dynamics of blood flow in simple microvascular networks*, Ph. D. Engineering, University of New Hampshire.

2003–2005 **Yingyi Lao**, *Analysis of blood flow dynamics in a simple microvascular network*, M. S. Chemical Engineering, University of New Hampshire.

2001-2003 **Gabriel Withington**, *A study of spontaneous oscillations in microvascular blood flow using delay differential equations*, M. S. Applied Mathematics, University of New Hampshire.

2000–2002 **Jason Miller**, *A numerical method for the accurate, stable simulation of the externally driven, damped nonlinear Schrodinger equation*, M. S. Applied Mathematics, University of New Hampshire.

2000-2002 **Pamela Lamontagne**, *Localized and non-localized solutions of the externally driven, damped nonlinear Schrodinger equation*, M. S. Applied Mathematics, University of New Hampshire.

Current Support

2012–2016 **Nonlinear Dynamics in Fluid Networks**, *NSF 1211640*, Principal Investigator.

Network fluid dynamics have been studied theoretically and computationally for approximately 20 years, yet few general statements about network behavior exist. The prevalent approach has been direct simulation which does not allow for the key parameters to be understood in a systematic way. Further, key predictions have never been tested in experiment. This proposal overcomes these limitations and will develop a new general theory for network fluid dynamics which is rooted in experiment and will describe the equilibrium and dynamic behavior of the network in a general manner such that results can be easily translated to specific physical systems. Finally, the work will be conducted at an undergraduate college with undergraduate students playing a central role in the research.

Prior Support

2010–2013 **A Mathematical Model of Microvascular Remodeling**, *NIH 1 R15 HL106648-01*, Principal Director.

Changes in blood vessel remodeling that occur in prevalent diseases such as obesity, diabetes, and hypertension are thought to cause some of the morbidity associated with these diseases including organ damage and tissue ischemia. The proposed work aims to use experimentally- motivated, mathematical models of vessel remodeling to gain understanding of this process that would be difficult to obtain experimentally. Increasing our knowledge about the remodeling process will ultimately lead to more effective clinical interventions.

2008–2011 **Faculty Development Modules**, *The Davis Educational Foundation*, Principal Investigator.

We propose to create and deliver a series of faculty development modules in which faculty at Olin College of Engineering deliver short, intensive courses for other faculty during the winter and summer breaks. This program would contribute to the intellectual vitality of faculty members and create new opportunities in teaching, student learning, and faculty research.

2007–2010 **Long-Term Undergraduate Research Experience**, *NSF 0636528*, Senior Personnel.

The Long-term Undergraduate Research Experience (LURE) model for the mathematical sciences is a collaboration between the mathematics faculty at Central Michigan University, Coppin State University, Olin College, and the University of Richmond. The LURE model emphasizes the early recruitment of undergraduates to mathematical research and the cultivation of interest in the mathematical sciences. It builds upon the success of the apprentice model often used in the physical and life sciences, wherein scientists routinely engage first- and second-year undergraduates in research and then continue to mentor these students until they are prepared to pursue graduate degrees. Specifically, LURE recruits students early in their undergraduate careers and pairs them with faculty who serve as mentors throughout a two-year research experience in the mathematical sciences. Through closely supervised research and independent study activities spanning two summers (ten weeks each) and two academic years, students experience all steps in a research project, from background reading to the professional presentation of results. This allows undergraduates to be involved with mathematics research experiences that are more sophisticated than possible with traditional single-summer research experiences.

2001–2004 **Nonlinear dynamics in microvascular networks**, *NIH/NHLBI 1 R01 HL067789-01*, Mathematician.

Temporal fluctuations in the microcirculation have long been considered the result of active biological control. The project focuses on computer simulations which indicate that the microvascular networks can exhibit spontaneous nonlinear oscillations in the absence of biological control. The simulations are based on well established blood rheological properties; the Fahraeus-Lindqvist effect and plasma skimming. Realistic network geometries based on in vivo observations of rat mesentery are used in the simulations.

1998–2003 **Linearity I and II**, *NSF/DUE 9752650*, Consultant.

A year-long integrated course of study organized around the fundamental concept of linearity and the process of linearization is being developed at the University of New Hampshire (UNH). The goals of this sequence are: 1) to unify the learning of the core ideas and techniques normally studied in a separate fashion in ordinary differential equations, linear algebra, and multivariable calculus, by captitalizing on the rich interconnections among the three subject areas, and 2) to maximize student opportunities to engage in contextual learning of these key concepts.

1998–2003 **Nonlinear dynamic forecasting for signal processing applications**, *NSF/DMS 9704911*, Consultant.

The goal of this project was to develop signal processing techniques based on nonlinear dynamic (NLD) forecasting. Traditional signal processing approaches have generally relied upon the assumption that systems are either periodic/quasi-periodic or random. The NLD forecasting approach attempts to bridge the gap between these approaches by assuming that there may be a deterministic component which is responsible for the observed complex behavior. The developed techniques have been successfully employed on seismic data from nuclear tests and data from a chaotic erbium-doped fiber ring laser.

Published Papers (Undergraduates in blue)

2015 **Nathaniel J. Karst, Brian D. Storey, and John B. Geddes**, *Oscillations and Multiple Equilibria in Microvascular Blood Flow*, Bulletin of Mathematical Biology 77, 1377–1400.

2015 **Brian D. Storey, Deborah V. Hellen, Nathanial J. Karst, and John B. Geddes**, *Observations of spontaneous oscillations in simple two-fluid networks*, Physical Review E 91, 023004.

2014 **Nathaniel J. Karst, Brian D. Storey, and John B. Geddes**, *Spontaneous oscillations in simple fluid networks*, SIAM Journal on Applied Dynamical Systems 13, 157–180.

2013 **Casey M. Karst, Brian D. Storey, and John B. Geddes**, *Laminar flow of two miscible fluids in a simple network*, Physics of Fluids 25, 033601.

2011 **Ilari Shafer, Morgan Boes, Rachel Nancollas, John B. Geddes, and Alisha Sieminski**, *Stability of a microvessel subject to structural adaptation of diameter and wall thickness*, Mathematical Medicine and Biology 28, 271–286.

2010 **John B. Geddes, Brian D. Storey, David Gardner, and Russell T. Carr**, *Bistability in a simple fluid network due to viscosity contrast*, Physical Review E 81, 046316-1–7.

2010 **David Gardner, Yiyang Li, Benjamin Small, John B. Geddes, and Russell T. Carr**, *Multiple equilibrium states in a micro-vascular network*, Mathematical Biosciences 227, 117–124.

2010 **John B. Geddes, Russell T. Carr, Fan Wu, Yingyi Lao, and Meaghan Maher**, *Blood flow in microvascular networks: A study in nonlinear biology*, Chaos 20, 045123-1–16.

2010 **Kelly Black and John B. Geddes**, *Noise-Induced oscillations in an actively lode-locked laser*, Computers and Mathematics with Applications 60, 1–13.

2010 **Jonathan Stolk, Robert Martello, Mark Somerville, and John Geddes**, *Engineering Students' Definitions of and Responses to Self-Directed Learning*, International Journal of Engineering Education 26, 900–913.

2008 **J B Geddes and K Black**, *The Dynamic Force Table*, PRIMUS 18, 221–246.

2007 **John B. Geddes, Russell T. Carr, Nathaniel J. Karst, and Fan Wu**, *The Onset of Oscillations in Microvascular Blood Flow*, SIAM Journal on Applied Dynamical Systems 6, 694–727.

2007 **Kelly Black and John B. Geddes**, *Complex Valued Spectral Hermite Approximations for the Actively Mode-Locked Laser*, Journal of Scientific Computing 32, 427–448.

2005 **Russell T. Carr, John B. Geddes, and Fan Wu**, *Oscillations in a simple microvascular network*, Annals of Biomedical Engineering 33, 764–771.

2003 **John B. Geddes, Willie J. Firth and Kelly Black**, *Pulse dynamics in an actively mode-locked laser*, SIAM Journal on Applied Dynamical Systems 2, 647–671.

2001 **Kelly Black and John B. Geddes**, *Spectral Hermite approximations for the actively mode-locked laser*, Journal of Scientific Computing 16, 81–120.

1999 **John B. Geddes, Kevin M. Short, and Kelly Black**, *Extraction of signals from chaotic laser data*, Physical Review Letters 83, 5389–5392.

1994 **J. B. Geddes, R. A. Indik, J. V. Moloney and W. J. Firth**, *Hexagons and squares in a passive nonlinear optical system*, Physical Review A 50, 3471–3485.

1994 **J. B. Geddes, J. V. Moloney, E. M. Wright and W. J. Firth**, *Polarization Patterns in a nonlinear cavity*, Optics Communications 111, 623–631.

1994 **J. B. Geddes, J. Lega, J. V. Moloney, R. A. Indik, E. M. Wright and W. J. Firth**, *Pattern selection in passive and active nonlinear optical systems*, Chaos, Solitons and Fractals 4, 1261–1274.

1994 **G. K. Harkness, W. J Firth, J. B. Geddes, E. M. Wright and J. V. Moloney**, *Boundary effects in large-aspect-ratio lasers*, Physical Review A 50, 4310–4317.

1992 **J. B. Geddes, J. V. Moloney and R. Indik**, *Spontaneous transverse spatial pattern formation due to stimulated Brillouin scattering of counterpropagating optical beams*, Optics Communications 90, 117–122.

Invited Presentations (Undergraduates in blue)

2013 **John B. Geddes**, *Chaos Theory*, Science on Screen Film Series (Run Lola Run), Coolidge Corner Theater, Brookline, MA.

2013 **John B. Geddes**, *Spontaneous Oscillations in Microvascular Networks*, CRM Applied Mathematics Seminar, University of Montreal, Montreal, QC.

2011 **John B. Geddes**, *Nonlinear Dynamics of Network Flows*, University of Minnesota Dynamical Systems Seminar, Minneapolis, MN.

2009 **Russell T. Carr and John B. Geddes**, *Nonlinear Dynamics and Microvascular Blood Flow*, Workshop on State-Dependent Delay Equations, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany.

2009 **John B. Geddes**, *Nonlinear Dynamics in Microvascular Blood Flow*, Conference on Dynamics in Systems Biology, University of Aberdeen, UK.

2009 **John B. Geddes**, *Nonlinear Dynamics in Microvascular Blood Flow*, University of Aberdeen Physics Seminar, Aberdeen, UK.

2009 **John B. Geddes, Benjamin Small, and Rachel Nancollas**, *Nonlinear Dynamics in Microvascular Networks*, Workshop on Applications of Complex Networks, University of Strathclyde, Glasgow, UK.

2007 **John B. Geddes**, *Oscillations in Microvascular Blood Flow*, University of Dundee Mathematics Seminar, Dundee, UK.

2007 **John B. Geddes and Russell T. Carr**, *Oscillations in Microvascular Blood Flow*, University of Nottingham Mathematics Seminar, Nottingham, UK.

2007 **John B. Geddes**, *Oscillations in Microvascular Blood Flow*, Union College Mathematics Seminar, Schenectady, NY.

2007 **John B. Geddes**, *Spontaneous Oscillations in Microvascular Blood Flow*, Blood Flow in the Microcirculation Workshop, Mathematical Biosciences Institute, Columbus, OH.

2003 **John B. Geddes**, *Oscillations in Microvascular Blood Flow*, Department of Mathematics and Statistics Seminar, College of the Holy Cross, Worcester, MA.

Contributed Presentations (Undergraduates in blue)

2015 **Halley Pollock-Muskin, Cecilia Diehl, Nora Mohamed, Nathan Karst, John Geddes, and Brian Storey**, *Multiple equilibrium states for blood flow in microvascular networks*, APS Division of Fluid Dynamics, Boston, MA.

2013 **Deborah Hellen, Erika Weiler, Nathan Karst, John Geddes, and Brian Storey**, *Spontaneous oscillations in simple fluid networks*, APS Division of Fluid Dynamics, Pittsburgh, PA.

2012 **Kevin O'Toole, Morgan Zhu, Alisha Sarang-Sieminski, and John B. Geddes**, *Structural Adaptation of Microvessels in Disease States*, SIAM Conference on the Life Sciences, San Diego, CA.

2011 **C. Karst, B. Storey, and J. Geddes**, *Distribution of two miscible fluids at a T-junction*, APS Division of Fluid Dynamics, Baltimore, MD.

2011 **L. Little, J. Park, E. F. Threlkeld, P. Varin, A. Sarang-Sieminski, and J. B. Geddes**, *Structural Adaptation of Microvessels in Disease States*, Biomedical Engineering Society Annual Meeting, Hartford, CT.

2011 **John B. Geddes, Alisha Sarang-Sieminski, Rachel Nancollas, Margaret-Ann Seger, and Elizabeth Threlkeld**, *Structural Adaptation of a small micro-vascular network*, International Conference on Industrial and Applied Mathematics, Vancouver, B. C..

2011 **John B. Geddes**, *Bistability and Oscillations in Fluid Networks*, Dynamics Days 2011, Chapel Hill, NC.

2010 **Rachel Nancollas, Benjamin Small, and John B. Geddes**, *Structural Adaptation of Microvascular Networks*, Joint Mathematics Meetings, San Francisco, CA.

2008 **John B. Geddes**, *Modeling, Simulation, and Analysis at Olin College of Engineering*, SIAM Minisymposium on Education and Applied Mathematics, Joint Mathematics Meetings, San Diego, CA.

2007 **Jonathan Stolk, Robert Martello, and John Geddes**, *Building autonomous students: Modeling curricular approaches for lifelong learning*, Frontiers in Education, Milwaukee, WI.

2007 **John B. Geddes, Russell T. Carr, Fan Wu, and Nathaniel J. Karst**, *Spontaneous oscillations in micro-vascular blood flow*, Dynamics Days 2007, Boston, MA.

2006 **Jonathan Stolk, Mark Somerville, John B. Geddes, and Robert Martello**, *Understanding discomfort: student response to self-direction*, Frontiers in Education Conference, San Diego, CA.

2006 **John B. Geddes and Russell T. Carr**, *A state dependent delay equation for microvascular bloodflow*, Society for Industrial and Applied Mathematics Annual Meeting, Boston, MA.

2006 **Kelly Black and John B. Geddes**, *Complex Hermite-Gaussian Approximation to the Mode-Locked Laser*, Society for Industrial and Applied Mathematics Annual Meeting, Boston, MA.

2005 **Russell T. Carr, John B. Geddes and Nathaniel J. Karst**, *Multiple Steady States in Microvascular Blood Flow*, Microcirculation 2005, Durham, NH.

2005 **Fan Wu, Russell T. Carr, John B. Geddes, and Yingyi Lao**, *Stability analysis of blood flow in three node microvascular networks*, Microcirculation 2005, Durham, NH.

2005 **Mark Somerville and John B. Geddes**, *Along the Spectrum of Inquiry: A Project-Based Approach to the First Year Experience*, Frontiers in Education Conference, Indianapolis, IN.

2005 **Mark Somerville and John B. Geddes**, *Early Exploration: A Project-based Approach*, Active Learning in Engineering Education, Netherlands.

2005 **Y. Lao, R.T. Carr, J.B. Geddes, and F. Wu**, *Dynamics of blood flow in a simple microvascular network (including spontaneous flow reversal)*, Experimental Biology, San Diego, CA.

2005 **F. Wu, R.T Carr, J.B. Geddes, and Y. Lao**, *Stability Analysis of Blood Flow in Microvascular Networks*, Experimental Biology, San Diego, CA.

2004 **Kelly Black, John B. Geddes, and Willie J. Firth**, *High-order approximation and pulse dynamics of a mode-locked laser*, International Conference On Spectral and High Order Methods, Providence, RI.

2004 **Mark Somerville and John Geddes**, *Developing Competencies through Early Exploration: A Project-Based Approach*, Active Learning in Engineering Education, France.

2003 **K. Black, and J. B. Geddes, and Willie Firth**, *Spectral Hermite Approximations and Transient Growth for the Actively Mode-Locked Laser*, Thirty Third Annual Lloyd Roeling Mathematics Conference, Lafayette, LA.

2003 **John B. Geddes and Russell T. Carr**, *Nonlinear Oscillations in Microvascular Bloodflow*, Dynamics Days 2003, Phoenix, AZ.

2002 **John B. Geddes and Kelly Black**, *Using a force table to motivate systems*, MathFest Conference, Burlington, VT.

2002 **Kelly Black and John B. Geddes**, *Linearity*, SIAM Annual Meeting, Philadelphia, PA.

2002 **Kelly Black and John B. Geddes**, *Building and Maintaining an Undergraduate Research Program*, Joint Mathematics Meetings, San Diego, CA.

2002 **Kelly Black and John B. Geddes**, *Preparing Undergraduate Students for Research*, Joint Mathematics Meetings, San Diego, CA.

2002 **Kelly Black and John B. Geddes**, *The Force Table in the Mathematics Classroom*, Joint Mathematics Meetings, San Diego, CA.

2001 **John B. Geddes, Willie J. Firth, Kelly Black, and Matthew Beauregard**, *Pulse dynamics in a mode-locked laser*, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT.

2000 **John B. Geddes and Kelly Black**, *Developing Undergraduate Researchers*, Conference on models for integrating research into the undergraduate experience, Tucson, AZ.

1999 **John B. Geddes, Kevin M. Short, and Kelly Black**, *Extracting signals from chaotic laser data*, International Conference on Industrial and Applied Mathematics, Edinburgh, Scotland.

1999 **John B. Geddes, Kevin M. Short, and Kelly Black**, *Extracting signals from chaotic laser data*, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT.

1999 **John B. Geddes, Kevin M. Short, and John Perreault**, *Polarization-based laser communication schemes*, SIAM Conference of Applications of Dynamical Systems, Snowbird, UT.

1997 **John B. Geddes**, *Incorporating Chaos Theory into the College Algebra Curriculum*, Mathematical Association of America, Edison, NJ.

1994 **John B. Geddes, Jerome V. Moloney, Ewan M. Wright and William J. Firth**, *Polarization patterns in a nonlinear cavity*, European Quantum Electronics Conference, Amsterdam, Netherlands.

1994 **John B. Geddes, Jerome V. Moloney, Ewan M. Wright and William J. Firth**, *Polarization patterns in a ring-cavity*, Nonlinear Optics, Hawaii.

1993 **John B. Geddes, Robert A. Indik, Jerome V. Moloney and William J. Firth**, *Patterns due to counter-propagating laser beams*, Nonlinear Optics Workshop, Tucson, AZ.

1992 **John B. Geddes, Robert A. Indik, Jerome V. Moloney, Alan C. Newell and William J. Firth**, *Hexagons and squares due to counter-propagation in Kerr media*, Optical Society of America Annual Meeting, Albuquerque, NM.

1992 **John B. Geddes, Jerome V. Moloney, Robert A. Indik, William J. Firth and Graham S. McDonald**, *Pattern formation due to nonlinear counter-propagation in Kerr and Brillouin-active media*, Nonlinear Dynamics of Optical Systems, Alpbach, Austria.

1992 **John B. Geddes, Robert A. Indik, Jerome V. Moloney, William J. Firth and Graham S. McDonald**, *Hexagons and their dynamics and defects in nonlinear counter-propagation in Kerr media*, International Quantum Electronics Conference, Vienna, Austria.

1991 **John B. Geddes, R. Chang, William J. Firth, Robert A. Indik, Jerome V. Moloney and Ewan M. Wright**, *Three-dimensional simulations and analysis of hexagonal pattern formation in Kerr media*, Optical Society of America Annual Meeting, San Jose, CA.

1991 **John B. Geddes, Jerome V. Moloney and Robert A. Indik**, *Spontaneous transverse spatial pattern formation due to stimulated Brillouin scattering of counter-propagating optical beams*, European Quantum Electronics Conference, Edinburgh, Scotland.