# CURRICULUM VITAE
## JENNIE D'AMBROISE

SUNY Old Westbury
Department of Mathematics,
 Computer & Information Systems
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**EDUCATION**

Ph.D.     Mathematics 2010, University of Massachusetts at Amherst
Dissertation: *Generalized EMP and non-Linear Schrödinger-type reformulations of some scalar field cosmological models*,
Advisor: Floyd L. Williams

B.Sc.     Mathematics 2003, University of Massachusetts at Amherst
Honors Thesis: *Cryptographic Methods*,
Advisor: Siman Wong
Honors: Magna Cum Laude

**EXPERIENCE**

2015 - now    Assistant Professor, SUNY Old Westbury
2013 - 2015    Visiting Assistant Professor, Amherst College
2011 - 2013    Visiting Assistant Professor, Bard College
2010 - 2011    Assistant Professor, University of Minnesota at Morris (UMM)
2008 - 2010    Lecturer, University of Massachusetts at Amherst (UMass)
2003 - 2008    Teaching Associate, University of Massachusetts at Amherst

**RESEARCH INTERESTS**

Nonlinear evolution equations, PDEs, Mathematical Physics, Numerical and exact methods, Mathematical aspects of quantum theories, $\mathcal{PT}$-symmetric systems

## PAPERS IN PROGRESS

- J. D'Ambroise, P. G. Kevrekidis, and J. Yang, *Partially $\mathcal{PT}$-symmetric potentials.*
- P. Engels, A. Khamechi, J. D'Ambroise, and P. G. Kevrekidis, *Investigations of spin-orbit systems*.

## PEER-REVIEWED PUBLICATIONS ( ∗ WITH UNDERGRADUATE STUDENT)

**11.**   J. D'Ambroise, M. Salerno, P. G. Kevrekidis, and F.Kh. Abdullaev, *Multidimensional discrete compactons in nonlinear Schrödinger lattices with strong nonlinearity management*, Phys. Rev. A **92** (2015), 053621, arXiv:nlin/1508.03008.

**10.**∗   J. D'Ambroise, P. G. Kevrekidis, and D. Law, *Asymmetric wave propagation through saturable nonlinear oligomers*, Photonics **1** No. 4 (2015), 390, arXiv:nlin/1412.4856.

**9.**   J. D'Ambroise, P. G. Keverekidis and B. A. Malomed, *Staggered $\mathcal{PT}$-symmetric ladders with cubic nonlinearity*, Phs. Rev. E **91** (2015), 033207, arXiv:nlin/1409.7413.

**8.**   J. D'Ambroise, S. Lepri, B. A. Malomed and P.G. Keverekidis, *$\mathcal{PT}$-symmetric ladders with a scattering core*, Phys. Lett. A **378** No. 38-39 (2014), 2824, arXiv:nlin/1407.1086.

**7.**   J. D'Ambroise, P. G. Kevrekidis and B. A. Malomed, *Quasi-energies, parametric resonances, and stability limits in ac-driven $\mathcal{PT}$-symmetric systems*, Chaos **24** (2014), 023136, arXiv:nlin/1308.3245.

**6.**   J. D'Ambroise, P. G. Kevrekidis and S. Lepri, *Eigenstates and instabilities of chains with embedded defects*, Chaos, **23** No. 2 (2013), p 023109 - 023109-10, arXiv:nlin/1211.5707.

**5.**   J. D'Ambroise, P. G. Kevrekidis and S. Lepri, *Asymmetric wave propagation through nonlinear PT-symmetric oligomers*, Journal of Physics A: Mathematical and Theoretical **45** No. 44 (2012), 444012, arXiv:nlin/1202.4483.

**4.**   J. D'Ambroise and F. L. Williams, *Parametric solution of a certain nonlinear differential equations in cosmology,* Journal of Nonlinear Mathematical Physics, **18** No. 2 (2011), 269-278 arXiv:gr-qc/1202.4422.

**3.** J. D'Ambroise and F. L. Williams, *A dynamic correspondence between FRLW cosmology with cosmological constant and Bose-Einstein condensates*, Journal of Mathematical Physics, **51** No. 6 (2010), 062501-062511, arXiv:math-ph/1007.4237.

**2.** J. D'Ambroise, *A Schrödinger formulation of Bianchi I scalar field cosmology*, International Journal of Pure and Applied Mathematics, **42** No. 3 (2008), 405-410, arXiv:hep-th/0711.3916.

**1.** J. D'Ambroise and F. L. Williams, *A nonlinear Schrödinger type formulation of FRLW scalar field cosmology,* International Journal of Pure and Applied Mathematics, **34** No. 1 (2007), 117-126, arXiv:hep-th/0609125.

## CONFERENCE PROCEEDINGS

**3.** J. D'Ambroise and F.L. Williams, *Parametric solution of certain nonlinear differential equations in cosmology II* Proc. of Sci. (2012), Invited Contribution for 7th International Conference on Math. Methods in Physics (ICMP), arXiv:gr-qc/1208.4812.

**2.** J. D'Ambroise, *EMP reformulations of Einstein's equations as an application of a property of suitable second order differential equations*, conference proceedings for Lie Theory and its Applications to Physics, Varna Bulgaria, June 2009.

**1.** J. D'Ambroise, *Applications of elliptic and theta functions to Friedman-Robertson-Lemaître-Walker cosmology with cosmological constant*, A Window Into Zeta and Modular Physics, Cambridge University Press (2010) arXiv:gr-qc/0908.2481.

## UNPUBLISHED PAPERS

**2.**[*] F. Kh. Abdullaev, J. D'Ambroise, P. G. Kevrekidis and Y. N. Truong Vu, *Some case example exact solutions for quadratically nonlinear optical media with $\mathcal{PT}$-symmetric potentials.*, arXiv:nlin/1501.00519.

**1.** J. D'Ambroise, *EMP and linear Schrödinger models for a conformally Bianchi I cosmology*, arXiv:hep-th/0809.4817.

## FUNDS

- Spring 2016 · Faculty Development Grant, SUNY Old Westbury (for ipad for video creation for blended course)
- Spring 2014 · Project in Innovative Curriculum and Teaching (PICT) Grant, Amherst College
- 2012 - 2014 · AMS-Simons Travel Grant
- Jul 2012     · AWM Workshop Speaker, at SIAM Annual Meeting AWM Workshop, Minneapolis, MN
- Jan 2009     · AWM Workshop Grant, Joint Mathematics Meetings, Washington D.C.
- Aug 2007     · Graduate Student Travel Grant, UMass Univ. and UMass Dept of Math & Stats
- May 2007     · Summer Research Assistantship, UMass Dept of Math & Stats

## UNDERGRADUATE SENIOR PROJECT SUPERVISION

- *As Primary Advisor*
  F12 - S13   · Emily Carlson, *A Model of Charge Transport in a Dye-Sensitized Solar Cell*, at Bard College
  F11 - S12   · Jeannette Benham, *Auditory Perception in Flatland: The Physical Applicability of a Two-Dimensional Cochlear Model*, at Bard College
- *As Non-Primary Advisor*
  F12           · Board Member for Grant Anderson, at the Bard College Prison Initiative
  F12           · Board Member for John Aufioros, at the Bard College Prison Initiative
  S11           · Secondary Advisor for Nick Grieme, *Finite-Element Method*, at UMM

## Teaching Awards

- May 2010 · Department of Mathematics and Statistics Teaching Award, UMass Amherst
- Apr 2009 · Residential First Year Experience Student Choice Award, UMass Amherst
- Apr 2007 · University of Massachusetts Distinguished Teaching Award (among two TAs university-wide)

## Teaching Experience

- *At SUNY Old Westbury († flipped classroom, ⋆ MyMathLab homeworks)*

  | | | | |
  |---|---|---|---|
  | F16 | ⋆ PreCalculus | ⋆ Differential Calculus | ⋆† Integral Calculus |
  | S16 | · Differential Equations | ⋆ Integral Calculus | |
  | F15 | ⋆ PreCalculus | ⋆ Differential Calculus | ⋆ Integral Calculus |

- *At Amherst College ( † flipped classroom, ∗ Mathematica labs, ⋆ WebWork homeworks)*

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  |---|---|---|
  | S15 | ⋆∗ Linear Algebra, 2 sections | |
  | F14 | · Complex Analysis | ⋆† Differential Calculus |
  | S14 | · Intro. to Analysis | ⋆† Differential Calculus |
  | F13 | · Intro. to Analysis | ⋆ Multivariable Calculus |

- *At Bard College ( ∗ Mathematica labs, ⋆ WebWork homeworks)*

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  |---|---|---|
  | S13 | ∗ ODE/PDE | ∗ Integral Calculus, 2 sections |
  | F12 | · Linear Algebra with ODE | ⋆ Integral Calculus, 2 sections |
  | S12 | · Complex Analysis | ⋆ Integral Calculus, 2 sections |
  | F11 | · Ordinary Differential Equations | ⋆ Differential Calculus, 2 sections |

- *At UMM ( ∗ Mathematica labs, ⋆ WebWork homeworks)*

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  |---|---|---|---|
  | S11 | ⋆ Multivariable Calculus | ⋆∗ Integral Calculus | ⋆∗ Differential Calculus |
  | F10 | · Real Analysis | ⋆∗ Differential Calculus | |

- *At UMass, Qualifying Exam Review Instructor*

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  | Su06 | · Real Analysis | · Geometry |

- *At UMass, Section Lecturer († WebAssign homeworks, ⋆ WebWork homeworks)*

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  |---|---|
  | S10 | ∗ Linear Algebra, 2 sections |
  | F09 | ∗ Multivariate Calculus for Sci/Eng, 2 sections |
  | S09 | † Integral Calculus for Sci/Eng, 2 sections |
  | F08 | † Differential Calculus for Sci/Eng, 2 sections |
  | S08 | · Honors Integral Calculus |
  | S07 | · Multivariate Calculus for Sci/Eng |
  | F06 | † Integral Calculus for Sci/Eng |
  | Su06 | · Integral Calculus |
  | F05 | · Basic Math Skills for the Modern World |
  | S05 | · Differential Calculus for Sci/Eng |
  | F04 | · Basic Math Skills for the Modern World |
  | F03 | · Precalculus Trigonometry |

- *At UMass, Recitation Instructor and Grader*

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  |---|---|
  | S06 and F07 | · Ordinary Differential Equations |

- *At UMass, Grader*

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  |---|---|---|
  | S04 | · Complex Analysis | · Real Analysis |
  | F03 | · Abstract Algebra II | |

## PROFESSIONAL SERVICE

- 2016-now · Reviewer for Physics Letters A (~1 per year)
- 2012-now · Reviewer for Communications in Nonlinear Science and Numerical Simulation (~1 per year)
- 2010-now · Reviewer for Mathematical Reviews/MathSciNet (~1-2 per year)
- Jun 2011 · Session Chair, LT9: Lie Theory and its App. to Phys., Varna, Bulgaria

## ONLINE FACULTY COURSES

- Spring 2016 · Completed with Distinction: Teaching and Learning Certificate for New Faculty, administered by SUNY Center for Professional Development.
  See online portfolio: https://sites.google.com/site/jenniedambroiseeportfolio
- Spring 2016 · Completed with Distinction: Quality by Design Course, administered by SUNY Center for Professional Development
- S16-F16 · Course in Progress: Online, Hybrid, and Blended Training, administered by SUNY Old Westbury with facilitator Chandra Shehigian

## ON CAMPUS SERVICE

- *At SUNY Old Westbury*
  S16-now · CSTEP Coordinator for Math/CIS Dept.
  Jun 2016 · Academic Standing Committee
  Apr 2016 · Open House representative for Mathematics
  Mar 2016 · Presentation: *Careers/Pathways for Math Majors*, sponsored by CSTEP
  Jan 2016 · Academic Standing Committee
  S16 · Academic Advising

- *At Amherst College*
  Fall 2013 · Putnam Problems Practice Sessions
  Fall 2013 · Graduate School Info Session

- *At Bard College*
  Aug 2011 · Graduate School Panel at Undergrad Workshop

- *At UMM*
  F10-S11 · Calculus Tutoring Center Math Liason

- *At UMass*
  F08-S10 · Calculus Tutoring Center, organizing and scheduling
  F08-S10 · Mathematical Physics Seminar Organizer
  F08, F09 · Distinguished Teaching Award Selection Committee
  Jan 2008 · Volunteer renovation of Mathematics undergraduate lounge
  S07, S08 · Workshop at Campus TA Orientation: *Making the Most of Your TA Experience Workshop*
  Sep 2008 · Student welcome and discussion, Mathematics and Statistics TA Orientation
  May 2008 · Dinner and discussion, Women and Minorities in Physics mentoring event

## Professional Organizations

- SIAM: Society for Industrial and Applied Mathematics
- AWM: Association for Women in Mathematics
- AMS: American Mathematical Society

## Other Educational Activities

- S14-S15 · Full member of Sigma Xi Scientific Research Society, Amherst College
- F13-F14 · Participate in Nonlinear Waves Seminar, Umass Amherst
- Su 2009 · Summer School on Nuclear and Particle Astrophysics:
  *Connecting Quarks with the Cosmos*, Univ Washington, Seattle WA
- Jun 2009 · Graduate Summer School: *Geometry of Quantum Fields and Strings*, UPenn
- Jun 2008 · MSRI Workshop: *A Window Into Zeta and Modular Physics*, UC Berkeley
- Jul 2009 · Career Mentoring for Women in Mathematics, Wheaton College, Norton, MA
- F08 - S10 · Organizer of Mathematical Physics Seminar
- F07 - S08 · Participated in Mathematical Physics and General Relativity Seminar
- F06 - S07 · Participated in General Relativity and Cosmology Seminar
- S06 - S10 · Physics Departmental Colloquium

## Talks

- *Multidimensional discrete compactons in nonlinear Schrödinger lattices*
  Jun 2016 · 4rd Internat. Conf. of Nonlinear Waves – Theory and Applications, Tsinghua Univ., Beijing, China
  May 2016· Nonlinear Waves Seminar, Umass Amherst
- *Eigenstates of chains with embedded defects*
  Apr 2014 · Nonlinear Waves Seminar, Umass Amherst
  Apr 2014 · Analysis and PDE Seminar, Worcester Polytechnic Institute, Worcester, MA
  Jun 2013 · 3rd International Conference of Nonlinear Waves – Theory and Applications, Beijing, China
- *Parametric and other exact solutions to Einstein's equations in terms of special functions*
  Sep 2012 · AMS Eastern Section Meeting, Special Session on Geometric Evolution Equations, RIT, NY
  Jul 2012 · AWM Workshop at SIAM Annual Meeting AWM Workshop, Minneapolis, MN
- *Parametric Solution of Certain Nonlinear Differential Equations in Cosmology*
  Jun 2011 · LT9: Lie Theory and its Applications to Physics, Varna, Bulgaria
  Jan 2011 · Joint Mathematics Meetings, New Orleans, LA
- *Elliptic functions in cosmology*
  Oct 2009 · AMS Fall Central Sectional Meeting, Baylor University, Waco, Texas
- *One correspondence used in reformulating Einstein equations for various scalar field cosmologies*
  Jun 2009 · LT8: Lie Theory and its Applications to Physics, Varna, Bulgaria
  Sep 2009 · Baylor University Mathematical Physics Seminar, Waco, Texas
  Sep 2009 · Texas A&M University Mathematical Physics Seminar, College Station, Texas
- *A linear Schrödinger formulation of d-dimensional Bianchi I cosmology and its relation to BECs*
  Aug 2008· 5th International Conference of Math. and Computing, Plovdiv, Bulgaria
- *On Relating d-dimensional FRLW Cosmology to Bose-Einstein Condensates*,
  Jun 2008 · MSRI Workshop: A Window into Zeta and Modular Physics, UC Berkeley
- *A Schrödinger type formulation of some scalar field cosmologies*,
  Mathematical Physics and General Relativity Seminar, UMass Dept of Math & Stats, Nov 2007
- *A nonlinear Schrödinger type formulation of FLRW and Bianchi I&V scalar field cosmologies*
  Aug 2007 · 4th International Conference of Math. and Computing, Plovdiv, Bulgaria
- *A nonlinear Schrödinger type formulation of FLRW scalar field cosmology*,
  Geometric Relativity and Cosmology Seminar, UMass Dept of Math & Stats, Oct 2006

**POSTERS**

- *Multidimensional discrete compactons in nonlinear Schrödinger lattices*
    Sep 2015 · Conference on Waves, Spectral Theory & Applications, Princeton Univ.
- *Uncoupled EMP and linear Schrödinger models for a conformally Bianchi I scalar field cosmology*
    Jan 2009 · AWM Workshop for Women Graduate Students and Recent PhDs, Washington D.C.
- *A linear Schrödinger formulation of d-dimensional Bianchi I cosmology and its relation to Bose-Einstein Condensates*
    Sep 2008 · Conference on Non-linear Phenomena in Mathematical Physics, Toronto, Canada
- *A nonlinear Schrödinger type formulation of FLRW and Bianchi I scalar field cosmologies,*
    Jul 2007 · 18th International Conference on General Relativity and Gravitation, Sydney, Australia

**CONFERENCES** ( ∗ funds reimbursed by organizers)

- Aug 2016 · SIAM Conf. on Nonlinear Waves and Coherent Structures, Philadelphia, PA
- Jul 2016 · SIAM Annual Meeting, Boston, MA
- Jun 2016 · 4th Internat. Conf. of Nonlinear Waves – Theory and Applications, Tsinghua Univ., Beijing, China
- Sep 2015 ∗ Conference on Waves, Spectral Theory & Applications, Princeton, NJ.
- Jan 2015 · Joint Mathematics Meetings, San Antonio, TX
- Jun 2013 · 3rd International Conference of Nonlinear Waves – Theory and Applications, Beijing, China
- Sep 2012 · AMS Eastern Section Meeting, Special Session on Geometric Evolution Equations, Rochester, NY
- Jul 2012 ∗ AWM Workshop at SIAM Annual Meeting AWM Workshop, Minneapolis, MN
- Jun 2012 ∗ SIAM Conf. on Nonlinear Waves and Coherent Structures, Univ. of Wash., Seattle, WA
- Apr 2012 ∗ Great Lakes Geometry Conference, Ohio State Univ, Columbus, OH
- Jan 2012 · Joint Mathematics Meetings, Boston, MA
- Jun 2011 · LT9: Lie Theory and its Applications to Physics, Varna, Bulgaria
- May 2011 ∗ Conference on Connections in Geometry and Physics: GAP, Fields Institute, Toronto, ON
- Jan 2011 · Joint Mathematics Meetings, New Orleans
- Oct 2010 ∗ Yamabe Memorial Symposium: Geom. and Low-Dim'l Topology$5^{th}$ Biennial, UMN Twin Cities
- Sept 2010 · Symmetry, Separation, Super-integrability and Special Functions (S4) Conf., UMN Twin Cities
- Jan 2010 · Joint Mathematics Meetings, San Francisco
- Oct 2009 · Represent. Thy. and Math. Phys. Conf. in honor of Gregg Zuckerman's $60^{th}$ birthday, Yale Univ., CT
- Oct 2009 · AMS Fall Central Sectional Meeting, Baylor Univ., Waco, TX
- Jun 2009 · LT8: Lie Theory and its Applications to Physics, Varna, Bulgaria
- Apr 2009 · AMS Spring Eastern Sectional Meeting, Worcester Polytechnic Institute, Worcestor MA
- Jan 2009 · Joint Mathematics Meetings, Washington D.C.
- Jan 2009 ∗ AWM Workshop for Women Graduate Students and Recent PhDs, JMM, Wash. D.C.
- Sep 2008 ∗ Conference on Non-linear Phenomena in Mathematical Physics, Fields Institute, Toronto, Canada
- Aug 2008 ∗ 5th International Conference of Math. and Computing, Tech. Univ. of Plovdiv, Bulgaria
- Jun 2008 ∗ Motives, Quantum Field Theory and Pseudodifferential Operators, Boston Univ.
- Jun 2008 ∗ MSRI Workshop, *A Window Into Zeta and Modular Physics*, UC Berkeley
- Oct 2007 · AMS Fall Eastern Section Meeting, Rutgers, New Jersey
- Aug 2007 ∗ 4th International Conference of Math. and Computing, Tech. Univ. of Plovdiv, Bulgaria
- July 2007 ∗ 18th Intern. Conf. on General Relativity and Gravitation, Sydney, Australia
- July 2007 · 7th Eduardo Amaldi Conf. on Gravitational Waves, Australia
- Jan 2007 · Rethinking Gravity, University of Arizona
- Oct 2006 · AMS Fall Eastern Section Meeting, University of Connecticut