

## Boaz Ilan – Curriculum Vitae

**Affiliation:** University of California, Merced  
School of Natural Sciences  
**Address:** 5200 North Lake Road, Merced, CA 95343  
**Email:** [bilan@ucmerced.edu](mailto:bilan@ucmerced.edu)

### Education

1997–2002 **Ph.D.**, *Summa cum laude*, Applied Mathematics, Tel Aviv University, Israel  
1991–1994 **B.Sc.**, Mathematics and Physics, Tel Aviv University, Israel

### Research Interests

- Wave propagation in nonlinear dispersive media
- Radiative transfer of light
- Asymptotic and perturbation methods
- Nonimaging optics
- Scientific computing

### Academic Positions

2018–Present	<b>Professor</b> School of Natural Sciences University of California, Merced	Merced, CA
2011–2018	<b>Associate Professor</b> School of Natural Sciences University of California, Merced	Merced, CA
2005–2011	<b>Assistant Professor</b> School of Natural Sciences University of California, Merced	Merced, CA
2002–2005	<b>Postdoctoral Research Associate</b> Department of Applied Mathematics University of Colorado at Boulder	Boulder, CO

## Academic Teaching Experience

2005–Present University of California, Merced

Course Developer and Instructor in the following courses:

Differential Equations and Linear Algebra (Undergraduate)

Complex Variables (Undergraduate)

Advanced Ordinary Differential Equations (Graduate)

Partial Differential Equations I (Graduate)

Partial Differential Equations II (Graduate)

Asymptotics and Perturbation Methods (Graduate)

Linear and Nonlinear Waves (Graduate Special Topics)

Waves and Asymptotics (Graduate Special Topics)

## Research Grants

- *Computational Modeling for Nonimaging Solar Concentrators*  
UC Merced Academic Senate Faculty Research Grants Program, Duration: 2018 – 2019,  
Role: PI, Amount: \$5,000
- *Computational Design of Highly Efficient Tandem Perovskite-Based Solar Cells*  
UC Merced MACES Seed Project, Duration: 2017 – 2018, Role: Co-PI
- *Fractals as a Promising Geometry for Enhanced Solar Energy Conversion*,  
Research Corporation for Science Advancement (Scialog Award),  
Duration: 2012–2014, Role: PI, Amount: \$20,000
- *Luminescent Solar Concentrators Based on Semiconductor Nanorods*,  
National Science Foundation (Solar Energy Initiative Grant CHE-0934615),  
Duration: 2009–2014, Role: Co-PI, Amount: \$1,318,996
- *MRI: Acquisition of Composite Femtosecond Lasing Systems for Broadband Non-linear  
Static and Dynamic Optical Analysis of Organic and Semiconducting System*,  
National Science Foundation (Shared Instrument Grant DMR-0821771),  
Duration: 2008–2011, Role: Co-PI, Amount: \$656,473

## Mentoring Experience at UC Merced

### Undergraduate Students

2019 – 2020 Juan Martinez, Applied Mathematical Sciences

2018 – 2019 Sarah Downs, Applied Mathematical Sciences

2018 – 2019 Cayce Fylling (Rimland), Applied Mathematical Sciences

2014 – 2015 Jessica Taylor, Applied Mathematical Sciences

### Graduate Students

- 2014 – Present Christine Hoffman, PhD Student in Applied Math (Advisor)  
2015 – 2019 Jessica Taylor, PhD Student in Applied Math (Advisor)  
2009–2014 Derya Şahin, PhD in Applied Math (Advisor)  
2016–2017 Izzet Göksel, Visiting Scholar from Istanbul Technical University (Supervisor)  
2008–2012 Chenji Gu, PhD in Physics (Committee Member)

### Faculty

- 2012 – 2014 Dr. Dimitrios Mitsotakis, Visiting Assistant Professor

### Publications

#### Articles that Appeared in Peer-Reviewed Journals

46. J. Taylor and B. Ilan  
Anisotropic collapse in three-dimensional dipolar Bose-Einstein condensates  
*Physics Letters A*, 384:126187, 2020
45. B. Mendewala, K. Nikolaidou, C. Hoffman, S. Sarang, J. Lu, B. Ilan, and S. Ghosh  
The potential of scalability in high efficiency hybrid perovskite thin film luminescent solar concentrators  
*Solar Energy* 183:392-397, 2019
44. K. Nikolaidou, S. Sarang, C. Hoffman, B. Mendewala, H. Ishihara, J. Q. Lu, B. Ilan, V. Tung, and S. Ghosh  
Hybrid Perovskite Thin Films as Highly Efficient Luminescent Solar Concentrators  
*Advanced Optical Materials* 4(12), 2126–2132, 2016
43. M. A. Hoefler and B. Ilan  
Onset of transverse instabilities of confined dark solitons  
*Physical Review A* 94:013609, 2016
42. P. González-Rodríguez, B. Ilan, and A. D. Kim  
One-way radiative transfer  
*Journal of Quantitative Spectroscopy & Radiative Transfer* 176:122–128, 2016
41. R. L. Chamousis, L. Chang, W. J. Watterson, R. Montgomery, R. P. Taylor, A. J. Moule, S. E. Shaheen, B. Ilan, J. van de Lagemaat, and F. E. Osterloh  
Effect of fractal silver electrodes on charge collection and light distribution in semiconducting organic polymer films  
*Journal of Materials Chemistry A* 2:16608–16616, 2014

40. D. Şahin and B. Ilan  
Asymptotic solution of light transport problems in optically thick luminescent media  
*Journal of Mathematical Physics* 55(6):061501, 2014
39. D. Mitsotakis, B. Ilan, and D. Dutykh  
On the Galerkin/Finite-Element Method for the Serre Equations  
*Journal of Scientific Computing* 61:166—195, 2014
38. C. Gu, B. Ilan, and J. E. Sharping  
Theory of nondegenerate-spectrum reversal and its breaking  
*Physical Review A* 88(4):043839, 2013
37. D. Şahin and B. Ilan  
Radiative transport theory for light propagation in luminescent media  
*Journal of the Optical Society of America A* 30(5):813–820, 2013  
Also appeared in *Virtual Journal for Biomedical Optics*
36. C. Gu, B. Ilan, and J. E. Sharping  
Demonstration of nondegenerate spectrum reversal in optical-frequency regime  
*Optics Letters* 38(4):591–593, 2013
35. A. H. Sheinfux, E. Schleifer, J. Pappeler, G. Fibich, B. Ilan, and A. Zigler  
Measuring the stability of polarization orientation in high intensity laser filaments in air  
*Applied Physics Letters* 101:201105, 2012
34. M. J. Ablowitz, N. Antar, I. Bakırtaş, and B. Ilan  
Vortex and dipole solitons in complex two-dimensional nonlinear lattices  
*Physical Review A* 86:033804, 2012
33. G. Salceda-Delgado, A. Martinez-Rios, B. Ilan, and D. Monzon-Hernandez  
Raman response function and Raman fraction of phosphosilicate fibers  
*Optical and Quantum Electronics* 38:4/6, 2012
32. M. A. Hoefler and B. Ilan  
Dark solitons, dispersive shock waves, and transverse instabilities  
*SIAM Journal on Multiscale Modeling & Simulation*, 10(2):306-341, 2012
31. D. Şahin, B. Ilan, and D. F. Kelley  
Monte-Carlo simulations of light propagation in luminescent solar concentrators based on semiconductor nanoparticles  
*Journal of Applied Physics* 110:033108, 2011  
Also appeared in *Virtual Journal of Nanoscale Science & Technology*
30. B. Ilan, Y. Sivan, and G. Fibich,  
A qualitative approach to soliton stability  
*Optics Letters* 36(3):397-399, 2011

29. B. Ilan and M. I. Weinstein  
Band-edge solitons, nonlinear Schrödinger / Gross-Pitaevskii equations and effective media  
*SIAM Journal on Multiscale Modeling & Simulation* 8(4):1055–1101, 2010
28. M. J. Ablowitz, N. Antar, I. Bakırtaş, and B. Ilan  
Band-gap boundaries and fundamental solitons in complex two-dimensional nonlinear lattices  
*Physical Review A* 81:033834, 2010
27. M. A. Hoefer and B. Ilan  
Theory of two-dimensional oblique dispersive shock waves in supersonic flow of a superfluid  
*Physical Review A – Rapid Communications* 80:061601(R), 2009  
Also appeared in *Virtual Journal of Atomic Quantum Fluids*
26. K. A. Mitchell and B. Ilan  
Nonlinear enhancement of the fractal structure in the escape dynamics of Bose-Einstein condensates  
*Physical Review A* 80:043406, 2009  
Also appeared in *Virtual Journal of Atomic Quantum Fluids*
25. Y. Sivan, G. Fibich, B. Ilan, and M. I. Weinstein  
Qualitative and quantitative analysis of stability and instability dynamics of positive lattice solitons  
*Physical Review E* 78:046602, 2008
24. Y. Sivan, G. Fibich, and B. Ilan  
Drift instability and tunneling of lattice solitons  
*Physical Review E – Rapid Communications* 77:045601(R), 2008
23. M. J. Ablowitz, T. P. Horikis, and B. Ilan  
Solitons in dispersion-managed mode-locked lasers  
*Physical Review A* 77:033814, 2008
22. M. J. Ablowitz, B. Ilan, E. Schonbrun, and R. Piestun  
Two-dimensional solitons in irregular lattice systems  
*Theoretical and Mathematical Physics* 151(3):723–734, 2007  
Translated from *Theoreticheskaya i Matematicheskaya Fizika*, 151(3):345–359, 2007
21. M. J. Ablowitz, B. Ilan, E. Schonbrun, and R. Piestun  
Solitons in two-dimensional lattices possessing defects, dislocations and quasicrystal structures  
*Physical Review E – Rapid Communications* 74:035601, 2006
20. M. J. Ablowitz, B. Ilan, and S. T. Cundiff  
Noise induced linewidth in frequency combs  
*Optics Letters* 31:1875–1877, 2006  
Also appeared in *Virtual Journal on Ultrafast Science*

19. M. A. Hoefer, M. J. Ablowitz, B. Ilan, M. R. Pufall, and T. J. Silva  
Theory of Magnetodynamics Induced by Spin Torque in Perpendicularly Magnetized Thin Films  
*Physical Review Letters* 95:267206, 2005
18. G. Fibich, S. Eisenmann, B. Ilan, Y. Erlich, M. Fraenkel, Z. Henis, A. L. Gaeta, and A. Zigler  
Self-focusing distance of very high power laser pulses  
*Optics Express* 13:5897–5903, 2005
17. Q. Quraishi, S. T. Cundiff, B. Ilan, and M. J. Ablowitz  
Dynamics of nonlinear and dispersion managed solitons  
*Physical Review Letters* 94:243904, 2005  
Also appeared in *Virtual Journal on Ultrafast Science*
16. M. J. Ablowitz, I. Bakırtaş, and B. Ilan  
Wave collapse in a class of nonlocal nonlinear Schrödinger equations  
*Physica D* 207:230-253, 2005
15. M. J. Ablowitz, B. Ilan, and S. T. Cundiff  
Carrier-envelope phase slip of ultrashort dispersion managed solitons  
*Optics Letters* 29:1808–1810, 2004
14. G. Fibich, S. Eisenmann, B. Ilan, and A. Zigler  
Control of Multiple Filamentation in Air  
*Optics Letters* 29:1772–1774, 2004
13. A. Dubietis, G. Tamosauskas, G. Fibich, and B. Ilan  
Multiple filamentation induced by input-beam ellipticity  
*Optics Letters* 29:1126-1128, 2004
12. G. Fibich and B. Ilan  
Optical light bullets in a pure Kerr medium  
*Optics Letters* 29:887–889, 2004
11. A. B. Aceves, G. Fibich, and B. Ilan  
Gap Soliton Bullets in Waveguide Gratings  
*Physica D* 189:277–286, 2004
10. G. Fibich, B. Ilan, and S. Schochet  
Critical exponents and collapse of nonlinear Schrödinger equations with anisotropic fourth-order dispersion  
*Nonlinearity* 16:1809–1821, 2003
9. G. Fibich, B. Ilan, and S. Tsynkov  
Backscattering and nonparaxiality arrest collapse of damped nonlinear waves  
*SIAM Journal on Applied Mathematics* 63:1718–1736, 2003

8. G. Fibich and B. Ilan  
Self-focusing of circularly polarized beams  
*Physical Review E* 67:036622, 2003  
Also appeared in *Virtual Journal of on Ultrafast Science*
7. G. Fibich and B. Ilan  
Discretization effects in the nonlinear Schrödinger equation  
*Applied Numerical Mathematics* 44:63–75, 2003
6. G. Fibich, B. Ilan, and S. Tsynkov  
Computation of nonlinear backscattering using a high-order numerical method  
*Journal of Scientific Computing* 17:351–364, 2002
5. G. Fibich and B. Ilan  
Multiple filamentation of circularly polarized beams  
*Physical Review Letters* 89:013901, 2002  
Also appeared in *Virtual Journal on Ultrafast Science*
4. G. Fibich, B. Ilan, and G. C. Papanicolaou  
Self-focusing with fourth-order dispersion  
*SIAM Journal on Applied Mathematics* 62:1437–1462, 2002
3. G. Fibich and B. Ilan  
Vectorial and random effects in self-focusing and in multiple filamentation  
*Physica D* 157:113–147 2001
2. G. Fibich and B. Ilan  
Deterministic vectorial effects lead to multiple filamentation  
*Optics Letters* 26:840–842 2001
1. G. Fibich and B. Ilan  
Self-focusing of elliptic beams: an example of the failure of the aberrationless approximation  
*Journal of the Optical Society of America B* 17:1749–1758, 2000

### Peer-Reviewed Conference Proceedings

8. B. Ilan, C. Hoffman, and C. Rimland  
Computational optimization for nonimaging solar concentrators using generalized pattern search  
Nonimaging Optics: Efficient Design for Illumination and Solar Concentrators XV, (Vol. 10758, p. 107580L).  
International Society for Optics and Photonics (SPIE) 2018
7. C. Hoffman, K. Nikolaidou, B. Ilan, and S. Ghosh  
Hybrid Perovskite Thin Films as Highly Efficient Luminescent Solar Concentrators  
Optical Society of America / Optics for Solar Energy (SOLAR), 2016

6. D. Şahin and B. Ilan  
Modeling light propagation in semiconductor-based luminescent solar concentrators  
*SPIE Nonimaging Optics: Efficient Design for Illumination and Solar Concentration X*, 2013
5. C. Gu, B. Ilan, and J. E. Sharping  
Frequency-time identical and reversal in ultrafast optical parametric processes  
*Lasers and Electro Optics (CLEO/QELS)*  
IEEE, 2013
4. D. Mitsotakis, D. Dutykh, and B. Ilan  
On the standard Galerkin/finite element method for the Serre-Green-Naghdi system  
Eighth IMACS International Conference on Nonlinear  
Evolution Equations and Wave Phenomena: Computation and Theory (2011)  
University of Georgia, Athens, GA
3. A. Martinez-Rios, B. Ilan, D. Monzon-Hernandez, I. Torres-Gomez, and Y. Márquez-Barrios  
Leaky-Mode Calculations in Optical Fibers  
*2nd Workshop on Specialty Optical Fibers and Their Applications (WSOF-2)*  
Proc. SPIE 7839, 783925 (2010)  
International Society for Optics and Photonics
2. C. Gu, B. Ilan, and J. E. Sharping  
Parabolic pulse generation in gain-guided optical fibers with nonlinearity  
*Lasers and Electro-Optics Society (LEOS)*  
IEEE, 2008
1. B. Ilan, M. J. Ablowitz, and S. T. Cundiff  
Quantum-noise limit on the linewidth of frequency combs  
*Conference on Lasers and Electro-Optics (CLEO)*  
Optical Society of America, 2007

### Book Chapters

2. B. Ilan and A. D. Kim  
Radiative Transfer of Light in Strongly Scattering Media  
In: *Springer Series in Light Scattering*,  
Volume 3: Radiative Transfer and Light Scattering,  
Edited by A. Kokhanovsky, pp. 63-103  
Springer, Cham., 2019
1. M. J. Ablowitz, İ. Bakırtaş, and B. Ilan  
On a class of nonlocal nonlinear Schrödinger equations and wave collapse  
*The European Physical Journal – Special Topics*, 147:343-362, 2007  
In: *Nonlinear Waves in Complex Systems: Energy Flow and Geometry*  
Edited by J.-G. Caputo and M. P. Sørensen  
Springer-Verlag



## Research Presentations

### Invited Talks in Seminars and Colloquia

- April 2020      Research Seminar, Applied Mathematics Seminar, Department of Mathematics  
State University of New York at Buffalo, Buffalo, NY
- April 2020      Research Seminar, Nonlinear Waves Seminar, Department of Applied Mathematics  
University of Colorado at Boulder, Boulder, CO
- February 2016    Research Seminar, School of Mathematics and Statistics  
Victoria University of Wellington, Wellington, New Zealand
- November 2014   Mathematics Colloquium, Department of Mathematics and Statistics  
San Diego State University, San Diego, CA
- November 2014   Nonlinear Waves Seminar, Department of Applied Mathematics  
University of Colorado at Boulder, Boulder, CO
- November 2014   Special Seminar, Chemical and Materials Science Center  
National Renewable Energy Lab, Boulder, CO
- February 2013    Differential Equations Seminar, Department of Mathematics,  
North Carolina State University, Raleigh, NC
- December 2011   Applied Math Seminar, Department of Applied Mathematics,  
Tel Aviv University, Tel Aviv, Israel
- November 2011   Colloquium, Department of Mathematics,  
University of Colorado at Colorado Springs, Colorado Springs, CO
- November 2011   Nonlinear Waves Seminar, Department of Applied Mathematics,  
University of Colorado at Boulder, Boulder, CO
- December 2010   Applied Math Colloquium, Department of Mathematics,  
Bar Ilan University, Ramat Gan, Israel
- December 2010   Applied Math Seminar, Department of Applied Mathematics,  
Tel Aviv University, Tel Aviv, Israel
- March 2010      Differential Equations Seminar, Department of Mathematics,  
North Carolina State University, Raleigh, NC
- March 2010      Colloquium, Department of Mathematics,  
University of Colorado at Colorado Springs, Colorado Springs, CO
- March 2010      Nonlinear Waves Seminar, Department of Applied Mathematics,  
University of Colorado at Boulder, Boulder, CO

- October 2009 Harmonic Analysis and Mathematical Physics Seminar, Department of Mathematics, University of Illinois at Urbana-Champaign, Urbana, IL
- April 2009 Nonlinear Waves Seminar, Department of Applied Mathematics, University of Colorado at Boulder, Boulder, CO
- July 2008 Colloquium, Department of Physics, Bilkent University, Bilkent, Turkey
- February 2008 Colloquium, Department of Applied Mathematics, University of Washington, Seattle, WA
- December 2007 Seminar, Department of Electrical Engineering – Physical Electronics, Tel Aviv University, Tel Aviv, Israel
- January 2007 Applied Mathematics Seminar, University of California, Merced, CA
- October 2006 Applied Mathematics Seminar, Department of Mathematics, University of California, Davis, CA
- April 2006 Colloquium, Department of Physics and Astronomy, San Francisco State University, San Francisco, CA
- January 2006 Applied Mathematics Seminar, Department of Mathematics, University of California, Berkeley, CA

### Invited Talks at Scientific Meetings

- June 2019 JNMP Conference on Nonlinear Mathematical Physics  
University of Santiago de Chile, Santigao, Chile  
*Candlestick Modes and Anisotropic Collapse of Dipolar Bose-Einstein Condensates*
- March 2019 American Mathematical Society Spring Western Section Meeting  
University of Hawai'i at Mānoa, Honolulu, HI  
*Derivative-free shape optimization and uncertainty quantification in nonimaging optics*
- September 2018 SPIE Optics + Photonics, San Diego, CA  
*Computational optimization for nonimaging solar concentrators using generalized pattern search*
- August 2017 Applied Mathematics, Modeling and Computational Science (AMMCS)  
Wilfrid Laurier University, Waterloo, Ontario, Canada  
*Radiative transfer theory for luminescent solar concentrators and solar cells*
- August 2017 Nonimaging Optics: Efficient Design for Illumination and Solar Concentration XIV  
SPIE Optics + Photonics, San Diego, CA  
*Optimizing Luminescent Solar Concentrators*
- May 2017 Nonlinear Waves and Integrable Systems, Rosh Pinna, Israel  
*On the spectrum of Schrödinger operators with periodic  $PT$ -symmetric potentials*
- December 2016 The Nineteenth Israel Mini-Workshop in Applied and Computational Mathematics  
Bar Ilan University, Bar Ilan, Israel  
*Nonlinear waves in inhomogeneous media*

- October 2016 American Mathematical Society Fall Sectional Meeting  
American Mathematical Society, Denver, CO  
*Band-edge solitons in the NLS equation with periodic PT-symmetric potentials*
- May 2015 Workshop on The Mathematics of Dispersive Shock Waves and Applications  
Banff Centre, Banff, Canada  
*Transverse instabilities of confined dark solitary waves*
- September 2013 Materials for a Sustainable Energy Future  
Institute For Pure and Applied Mathematics, UCLA, CA  
*Modeling light propagation in luminescent solar concentrators*
- July 2012 Nonlinear Evolution Equations and Dynamical Systems (NEEDS) 2012 Workshop  
Orthodox Academy of Crete, Kolimvari, Crete, Greece  
*Dark solitons, dispersive shock waves and their transverse instabilities*
- June 2012 SIAM Conference on Nonlinear Waves and Coherent Structures  
University of Washington, Seattle, WA  
*Dark solitons, dispersive shock waves and their transverse instabilities*
- May 2012 Frontiers in Applied and Computational Mathematics 2012  
New Jersey Institute of Technology, Newark, NJ  
*Dark solitons, dispersive shock waves and their transverse instabilities*
- March 2012 American Mathematical Society Spring Western Section Meeting  
University of Hawai'i at Mānoa, Honolulu, HI  
*Transverse instabilities of dark solitons and dispersive shocks*
- July 2011 International Congress on Industrial & Applied Mathematics  
Mini-Symposium on Mathematics in Solar Energy Research  
Vancouver, Canada  
*Light scattering in Luminescent Solar Concentrators based on anisotropic semiconductor nano-rods*
- June 2010 Nonlinear Waves – Theory and Applications II  
Zhou Peiyuan Center for Applied Mathematics, Tsinghua University  
Beijing, China  
*Absolute and convective instabilities of oblique dispersive shock waves*
- November 2009 Materials Research Society Fall Meeting, Boston, MA  
Third-Generation Solar Technologies Multidisciplinary Workshop  
*Mathematical modeling of light propagation in luminescent solar concentrators*  
Presented by D. Şahin
- August 2009 Analysis of nonlinear wave equations and applications in engineering  
Banff International Research Station for Mathematical Innovation and Discovery  
Banff, Canada  
*Band-edge solitons of nonlinear Schrödinger equations with periodic potentials*
- July 2009 SIAM Annual Meeting, Denver, CO  
*Scaling laws of noise-induced broadening in optical frequency combs*

- October 2008 Singular phenomena in nonlinear optics, hydrodynamics and plasmas  
Banff International Research Station for Mathematical Innovation and Discovery  
Banff, Canada  
*Lattice solitons, orbital instabilities, and the band-gap interface*
- June 2008 Nonlinear Physics: Theory and Experiment V  
Organized by Universita di Lecce  
Gallipoli (Lecce), Italy  
*Stability and instability dynamics of lattice solitons*
- June 2008 Nonlinear Waves – Theory and Applications  
Zhou Peiyuan Center for Applied Mathematics, Tsinghua University  
Beijing, China  
*NLS stability theory for solitons in inhomogeneous media*
- August 2007 “Nonlinear Waves and... more”  
Meeting at the University of Colorado at Boulder, Boulder, CO  
*Dynamics and stability of localized nonlinear waves in inhomogeneous media*
- September 2006 SIAM Conference on Nonlinear Waves and Coherent Structures  
University of Washington, Seattle, WA  
1) *Random linewidth of frequency combs induced by noise in mode-locked lasers*  
2) *Solitary waves in two-dimensional irregular lattices*
- June 2006 Nonlinear Physics: Theory and Experiment IV  
Organized by the Universita di Lecce  
Gallipoli (Lecce), Italy  
*Two-dimensional solitons in irregular lattices*
- June 2005 Nonlinear Waves, Integrable Systems and Applications  
University of Colorado at Colorado Springs, Colorado Spring, CO  
*Nonlinear phase slip of optical solitons used in optical clocks*
- October 2004 IMA Workshop on Singularities in Materials  
Institute for Mathematics and its Applications, University of Minnesota,  
Minneapolis, MN  
*Singularity formation in nonlinear Schrödinger equations with fourth-order dispersion*
- October 2004 The First SIAM Conference on Nonlinear Waves and Coherent Structures  
University of Central Florida, Orlando, FL  
*Carrier-envelope phase slip of solitons in Ti:sapphire lasers*
- December 2003 Israel Mathematical Union Sectional Meeting  
Weizmann Institute, Rehovot, Israel  
*Optical light bullets in a pure Kerr medium*

- May 2003 Rocky Mountain Workshop on Dynamics and Bifurcations of Patterns in Dissipative Systems,  
Colorado State University, Fort Collins, CO  
*Polarization effects in self-focusing and in multiple filamentation*
- April 2003 Third IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory  
University of Georgia, Athens, GA  
*Self-focusing and multiple filamentation of circularly polarized beams*
- February 2003 Emerging Applications of the Nonlinear Schrödinger Equation  
Institute for Pure and Applied Mathematics, UCLA, Los Angeles, CA  
*Self-focusing and multiple filamentation of circularly-polarized beams*
- January 2002 The 32<sup>nd</sup> Winter Colloquium on the Physics of Quantum Electronics  
Snowbird, Utah  
*Self-focusing and multiple filamentation of circularly-polarized beams*
- June 2001 Israel Mathematical Union Sectional Meeting  
The Weizmann Institute of Science, Rehovot, Israel  
*Polarization effects in self-focusing*
- July 1999 Fourth International Congress on Industrial and Applied Mathematics (ICIAM 99)  
Edinburgh, Scotland  
*Vectorial effects in self-focusing*

### Other Presentations at Scientific Meetings

- May 2017 Nonlinear Waves in Israel, Rosh Pinna, Israel  
*On the spectrum of Schrödinger operators with periodic PT-symmetric potentials*
- June 2015 Nonlinear Waves in Malta, Golden Sands, Malta  
*Spectral Mirror Imaging in nonlinear optics*
- June 2014 Workshop on Nonlinear Waves and Integrable Systems  
Taormina, Sicily, Italy  
*Onset of transverse instabilities of confined dark solitons*
- September 2013 SPIE Optics + Photonics  
*Modeling light propagation in semiconductor-based luminescent solar concentrators*  
Presented by D. Şahin
- October 2013 4<sup>th</sup> Annual Scialog Conference  
Biosphere 2, AZ  
*Towards Fractal Electrode Enhanced Organic Photovoltaic Cells*  
Invited collaborative poster with F. Osterloh, S. Shaheen, and R. Taylor
- March 2013 First International Vallarta Meeting on Nonlinear Waves and their Dynamics  
Nuevo Vallarta, Mexico  
*Radiative transport theory for light propagation in luminescent media*

- June 2012      Division of Atomic, Molecular and Optical Physics (DAMOP) Annual Meeting  
American Physical Society  
Anaheim, CA  
*Chaotic dynamics of dipolar condensates in optical traps*  
Presented by R. Moran
- May 2012      Conference on Lasers and Electro-Optics (CLEO)  
Optical Society of America  
San Jose, CA  
*Spectral Mirror Imaging in Ultrafast Optical Parametric Processes*  
Presented by C. Gu
- November 2011      Renewable Energy and the Environment Meeting  
Optical Society of America  
Austin, TX  
*Photon Transport in Luminescent Solar Concentrators based on Semiconductor Nanoparticles*  
Presented by D. Şahin
- August 2011      22<sup>nd</sup> General Congress of the International Commission for Optics (ICO-22)  
William O. Jenkins Convention Centre, Puebla, Mexico  
*Calculation of higher order dispersion coefficients in photonic crystal fibers*  
Presented by A. Martinez-Rios
- October 2011      2<sup>nd</sup> Annual Scialog Conference  
Biosphere 2, AZ  
Invited poster: *Photon transport in luminescent solar concentrators based on semiconductor nanoparticles*
- November 2008      IEEE Lasers and Electro-Optics Society (LEOS)  
Newport Beach, CA  
*Parabolic pulse generation in gain-guided optical fibers with nonlinearity*  
Presented by C. Gu
- May 2007      Conference on Lasers and Electro-Optics (CLEO / QELS)  
American Physical Society, IEEE, and the Optical Society of America  
Baltimore Convention Center, Baltimore, MD  
*Quantum-noise limit on the linewidth of frequency combs*
- March 2004      Nonlinear Guided Waves and Their Applications  
Optical Society of America Topical Meeting  
Westin Harbour Castle Hotel, Toronto, Canada  
*Theory of Carrier-Envelope Phase Slip for Ultrashort Dispersion-Managed Solitons*
- January 2001      LASE Congress, Photonics West, San Jose, CA  
*Vectorial effects in self-focusing lead to multiple filamentation*

## Academic Service

### Organization of Meetings and Mini-Symposia

- June 2019 Session Co-Organizer  
*Workshop on Nonlinear Waves and Integrable Systems*  
 Palladio Hotel, Buenos Aires, Argentina 2019 March 2019 Session C  
*Special Session on Nonlinear Wave Equations and Applications*  
 American Mathematical Society Spring Western Section Meeting  
 University of Hawai'i at Mānoa, Honolulu, HI
- March 2019 Session Co-Organizer  
*Special Session on Computational and Data-Enabled Sciences*  
 American Mathematical Society Spring Western Section Meeting  
 University of Hawai'i at Mānoa, Honolulu, HI
- May 2017 Meeting Co-Organizer  
*Workshop on Nonlinear Waves and Integrable Systems*  
 Rosh Pinna, Israel
- June 2014 Meeting Co-Organizer  
*Workshop on Nonlinear Waves and Integrable Systems*  
 Taormina, Sicily, Italy
- March 2013 Meeting Co-Organizer  
*First International Vallarta Meeting on Nonlinear Waves and their Dynamics*  
 Nuevo Vallarta, Mexico
- June 2012 Mini-Symposium Co-Organizer and Co-Chair  
*Solitons in semiclassical dispersive fluids*  
 SIAM Conference on Nonlinear Waves and Coherent Structures  
 University of Washington, Seattle, WA
- August 2010 Mini-Symposium Co-Organizer and Co-Chair  
*Waves in inhomogeneous media*  
 SIAM Conference on Nonlinear Waves and Coherent Structures  
 Sheraton Society Hill Hotel, Philadelphia, PA
- June 2010 Mini-Symposium Co-Organizer and Co-Chair  
*Supersonic, Dispersive Fluid Flows*  
 The Second International Conference on Nonlinear Waves – Theory and Applications  
 Zhou Peiyuan Center for Applied Mathematics, Tsinghua University  
 Beijing, China
- June 2008 Mini-Symposium Organizer and Chair  
*Topics in Self-Focusing and Ultrafast Lasers*  
 Nonlinear Waves – Theory and Applications  
 Zhou Peiyuan Center for Applied Mathematics, Tsinghua University  
 Beijing, China

- September 2006 Mini-Symposium Organizer and Chair  
*Dynamics of Ultrashort Optical Pulses*  
SIAM Conference on Nonlinear Waves and Coherent Structures  
University of Washington, Seattle, WA
- October 2004 Mini-Symposium Organizer and Chair  
*Nonlinear Schrödinger Equations and Their Applications in Nonlinear Optics*  
The First SIAM Conference on Nonlinear Waves and Coherent Structures  
University of Central Florida, Orlando, FL

### **Service at the University of California, Merced**

#### **Applied Mathematics Unit and Graduate Group (Partial List)**

- 2017–Present Faculty Assessment Organizer for Applied Mathematics
- 2018–2019 Chair, Applied Mathematics Graduate Program
- 2010–2015 Coordinator / Chair, Applied Mathematics Graduate Program
- 2017–2019 Member, Applied Mathematics Graduate Program Admissions Committee
- 2017–2019 Member, Applied Mathematics Major Assessment Committee
- 2006–2019 Member, Applied Mathematics Graduate Program Executive Committee

#### **School of Natural Sciences**

- 2017–Present Member, School of Natural Sciences Executive Committee
- 2012–2013 Member, School of Natural Sciences Leadership Council
- 2006–2009 Member, Academic Resources and Planning Committee

#### **University Service**

- 2019 Member, General Education Executive Committee
- 2018–2019 Member, Committee on Rules and Elections



**Public Service and Outreach**

- October 2011 Representative, School of Natural Sciences Preview Day
- March 2011 Presenter for EXCEL! – an Academic Success Program, UC Merced
- February 2011 Mathematics and Computer Science Speaker Series (mcs<sup>3</sup>)  
California State University, Stanislaus, CA
- April 2010 Presenter for Applied Mathematical Sciences, Bobcat Day, UC Merced
- March 2010 Representative, Dinner With A Scientist , UC Merced
- March 2009 Representative, Dinner With A Scientist, UC Merced
- March 2007 Representative, Dinner With A Scientist , UC Merced
- April 2006 Presenter for Applied Mathematical Sciences, Bobcat Day, UC Merced

**Ad hoc Review for Scientific Journals**

*Applied Numerical Mathematics*  
*Europhysics Letters*  
*Journal of Applied Physics*  
*Journal of Nonlinear Science*  
*Journal of the Optical Society of America B*  
*Journal of Optics*  
*Journal of Physics A: Mathematical and Theoretical*  
*Optics Express*  
*Optics Letters*  
*Physica D*  
*Physical Review A*  
*Physical Review B*  
*Physical Review E*  
*Physical Review Letters*  
*Royal Society Open Science*  
*Studies in Applied Mathematics*

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