

## Publication List of Taras I. Lakoba

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### BOOK ENTRIES

1. T.I. Lakoba, Numerical methods for local models, *Encyclopedia of ecology*, S.E. Jorgensen and B. Fath Eds., Elsevier (2008); pp. 2544–2551.
2. T.I. Lakoba, Numerical methods for distributed models, *Encyclopedia of ecology*, S.E. Jorgensen and B. Fath Eds., Elsevier (2008); pp. 2536–2544.

### JOURNAL PUBLICATIONS

1. S.M. Rahaman, D. Mitra, G.I. Melikidze, T. Lakoba, Pulsar radio emission mechanism II. On the origin of relativistic Langmuir solitons in pulsar plasma, *MNRAS (Monthly Notices of the Royal Astronomical Society)* (to appear).
2. J.M. Vanegas, D. Peterson, T.I. Lakoba, V.N. Kotov, Spinodal de-wetting of light liquids on graphene, *J. Phys.: Cond. Matt.* **34**, 175001 (2022).
3. A. Del Maestro, C. Wexler, J.M. Vanegas, T. Lakoba, V.N. Kotov, A Perspective on Collective Properties of Atoms on 2D Materials, *Adv. Electron. Mater.* **8**, 2100607 (2022).
4. T.I. Lakoba, B.L. Kotzen, C.J. McKinstrie, Numerical treatment of boundary conditions to reduce high-frequency artifacts in simulations of distributed-feedback Lasers, *J. Sel. Top. Quantum Electron.* **28**, 1500812 (2022).
5. J. Yu, E. Lauricella, M. Elsayed, K. Shepherd, N.S. Nichols, T. Lombardi, S.W. Kim, C. Wexler, J.M. Vanegas, T. Lakoba, V.N. Kotov, A. Del Maestro, Two-dimensional Bose–Hubbard model for helium on graphene, *Phys. Rev. B* **103**, 235414 (2021).
6. S. Duo, T.I. Lakoba, Y. Zhang, Dynamics of Plane Waves in the Fractional Nonlinear Schrödinger Equation with Long-Range Dispersion, *Symmetry* **13**, 1394 (2021).
7. T.I. Lakoba, J.S. Jewell, Higher-order explicit schemes based on the Method of characteristics for hyperbolic equations with crossing straight-line characteristics, *Numer. Meth. Partial Differ. Equ.* **37**, 2742–2780 (2021).
8. P.G. Patki, P. Guan, L. Li, T.I. Lakoba, L.K. Oxenlowe, M. Vasilyev, M. Galili, Recent progress on optical regeneration of wavelength-division-multiplexed data, *IEEE J. Sel. Top. Quantum Electron.* **27**, 7700812 (2021).
9. T.I. Lakoba, Study of instability of the Fourier split-step method for the massive Gross–Neveu model, *J. Comput. Phys.* **402**, 109100 (2020).
10. T.I. Lakoba, Z. Deng, Stability analysis of the numerical Method of characteristics applied to energy-preserving systems. Part II: Nonreflecting boundary conditions, *J. Comput. Appl. Math.* **356**, 267–292 (2019).
11. T.I. Lakoba, Z. Deng, Stability analysis of the numerical Method of characteristics applied to energy-preserving systems. Part I: Periodic boundary conditions, *J. Comput. Appl. Math.* **356**, 67–80 (2019).
12. T.I. Lakoba, D. Mitra, G. Melikidze, Relativistic charge solitons created due to nonlinear Landau damping: a candidate for explaining coherent radio emission in pulsars, *MNRAS (Monthly Notices of the Royal Astronomical Society)* **480**, 452–4543 (2018).
13. T.I. Lakoba, Numerical study of solitary wave stability in cubic nonlinear Dirac equations in 1D, *Phys. Lett. A* **382**, 300–308 (2018).

14. **L. Li, P. Patki, Y. Kwon, V. Stelmakh, B. Campbell, A. Annamalai, T. Lakoba, M. Vasilyev**, All-optical regenerator of multi-channel signals, *Nature Comm.* **8**, 884 (2017).
15. **T.I. Lakoba**, Long-time simulations of nonlinear Schrödinger-type equations using step size exceeding threshold of numerical instability, *J. Sci. Comput.* **72**, 14–48 (2017).
16. **T.I. Lakoba**, Instability of the finite-difference split-step method applied to the nonlinear Schrödinger equation. III. External potential and oscillating pulses, *Num. Meth. PDEs* **33**, 633–650 (2017).
17. **T.I. Lakoba**, Instability of the finite-difference split-step method applied to the nonlinear Schrödinger equation. II. Moving soliton, *Num. Meth. PDEs* **32**, 1024–1040 (2016).
18. **T.I. Lakoba**, Instability of the finite-difference split-step method applied to the nonlinear Schrödinger equation. I. Standing soliton, *Num. Meth. PDEs* **32**, 1002–1023 (2016).
19. **T.I. Lakoba**, Effect of noise on extreme events probability in a one-dimensional nonlinear Schrödinger equation, *Phys. Lett. A* **379**, 1821–1827 (2015).
20. **G. Ghanavati, P.D.H. Hines, T.I. Lakoba**, Identifying useful statistical indicators of proximity to instability in stochastic power systems, *IEEE Trans. Power Syst.* **31**, 1360–1368 (2016).
21. **G. Ghanavati, P.D.H. Hines, T.I. Lakoba, E. Cotilla-Sanchez**, Understanding of early indicators of critical transitions in power systems from autocorrelation functions, *IEEE Trans. Circ. & Syst. - I* **61**, 2747–2760 (2014).
22. **T.I. Lakoba, M. Vasilyev**, On multi-channel operation of phase-preserving 2R amplitude regenerator, *Opt. Commun.* **322**, 114–117 (2014).
23. **T.I. Lakoba**, Instability of the split-step method for a signal with nonzero central frequency, *J. Opt. Soc. Am. B* **30**, 3260–3271 (2013).
24. **T.I. Lakoba**, Spurious localized highest-frequency modes in Schrödinger-type equations solved by finite-difference methods, *J. Comp. Appl. Math.* **245**, 117–120 (2013).
25. **T.I. Lakoba**, Instability analysis of the spit-step Fourier method on the background of a soliton of the nonlinear Schrödinger equation, *Num. Meth. PDEs* **28**, 641–669 (2012).
26. **T.I. Lakoba, J.R. Williams, M. Vasilyev**, Low-power, phase-preserving 2R amplitude regenerator, *Opt. Commun.* **285**, 331–337 (2012).
27. **T.I. Lakoba, J.R. Williams, M. Vasilyev**, NALM-based, phase-preserving 2R regenerator of high-duty-cycle pulses, *Opt. Express* **19**, 23017–23028 (2011).
28. **T.I. Lakoba**, Convergence conditions for iterative methods seeking multi-component solitary waves with prescribed quadratic conserved quantities, *Math. Comp. Simul.* **81**, 1572–1592 (2011).
29. **T.I. Lakoba**, Conjugate Gradient method for finding fundamental solitary waves, *Physica D* **238**, 2308–2330 (2009).
30. **T.I. Lakoba**, BER degradation by signal-reshaping processors with non-instantaneous response, *J. Lightwave Technol.* **27** 1379–1386 (2009).
31. **T.I. Lakoba, M. Vasilyev**, A comparative study of noisy signal evolution in 2R all-optical regenerators with normal and anomalous average dispersions using an accelerated Multicanonical Monte Carlo method, *Opt. Express* **16**, 17714–17728 (2008).
32. (Invited) **T.I. Lakoba**, Multicanonical Monte Carlo study of the BER of an all-optically 2R regenerated signal, *IEEE J. Sel. Topics Quantum Electron.* **14**, 599–609 (2008).
33. **J. Yang, T.I. Lakoba**, Accelerated imaginary-time evolution methods for the computation of solitary waves, *Stud. Appl. Math.* **120**, 265–292 (2008).
34. **T.I. Lakoba, J. Yang**, A mode elimination technique to improve convergence of iteration methods for finding solitary waves, *J. Comp. Phys.* **226**, 1693–1709 (2007).
35. **T.I. Lakoba, J. Yang**, A generalized Petviashvili iteration method for scalar and vector Hamiltonian equations with arbitrary form of nonlinearity, *J. Comp. Phys.* **226**, 1668–1692 (2007).

36. **T.I. Lakoba, M. Vasilyev**, A new robust regime for a dispersion-managed multichannel 2R regenerator, *Opt. Express* **15**, 10061–10074 (2007).
37. **J. Yang, T.I. Lakoba**, Universally-convergent squared-operator iteration methods for solitary waves in general nonlinear wave equations, *Stud. Appl. Math.* **118**, 153–197 (2007).
38. **M. Vasilyev, T.I. Lakoba**, All-optical multi-channel 2R regeneration in a fiber-based device, *Opt. Lett.* **30**, 1458–1460 (2005).
39. **T.I. Lakoba**, Transmission improvement in ultra-long dispersion-managed soliton WDM systems by using pulses with different widths, *J. Lightwave Technol.* **23**, 2647–2653 (2005).
40. **T.I. Lakoba, D.J. Kaup, N.M. Finkelstein**, Modifications of the Helbing-Molnár-Farkas-Vicsek social-force model for pedestrian evolution, *SIMULATION: Transactions of The Society for Modeling and Simulation International*, **81**, 339–352 (2005).
41. **T.I. Lakoba**, Effect of Raman co-pump's RIN on the BER for signal transmission using ON-OFF keying modulation format, *J. Lightwave Technol.* **22** 382–389 (2004).
42. **T.I. Lakoba, C. Dorrer, D.N. Maywar**, Polarization-mode dispersion of a circulating loop, *J. Opt. Soc. Am. B* **21** 243–248 (2004).
43. **C.J. McKinstrie, T.I. Lakoba**, Probability-density functions for energy perturbations of isolated optical pulses, *Optics Express* **11** 3628–3648 (2003).
44. **C.J. McKinstrie, C. Xie, T.I. Lakoba**, Efficient modeling of phase jitter in dispersion-managed soliton systems, *Opt. Lett.* **27** 1887–1889 (2002).
45. **J. Santhanam, C.J. McKinstrie, T.I. Lakoba, G.P. Agrawal**, Effects of pre- and post-compensation on timing jitter in dispersion-managed systems, *Opt. Lett.* **26** 1131–1133 (2001).
46. **T.I. Lakoba**, Enhanced robustness of dispersion-managed solitons with respect to polarization-mode dispersion, *Opt. Lett.* **25** 1789–1791 (2000).
47. (Invited) **T.I. Lakoba, D.E. Pelinovsky**, Persistent oscillations of scalar and vector dispersion-managed solitons, *Chaos*, focus issue on Optical Solitons, **10** 539–550 (2000).
48. **T.I. Lakoba, G.P. Agrawal**, Optimization of average-dispersion range for trans-oceanic dispersion-managed soliton systems, *J. Lightwave Technol.* **18** 1504–1512 (2000).
49. **T.I. Lakoba**, Non-integrability of equations governing pulse propagation in dispersion-managed optical fibers, *Phys. Lett. A* **260** 68–77 (1999).
50. **T.I. Lakoba, G.P. Agrawal**, Effect of third-order dispersion on dispersion-managed solitons, *J. Opt. Soc. Am. B* **16** 1332–1343 (1999).
51. **T.I. Lakoba, D.J. Kaup**, Influence of the Raman effect on dispersion-managed solitons and their interchannel collisions, *Opt. Lett.* **24** 808–810 (1999).
52. **T.I. Lakoba, D.J. Kaup**, A Hermite-Gaussian expansion for pulse propagation in strongly dispersion-managed fibers, *Phys. Rev. E* **58** 6728–6741 (1998).
53. **T.I. Lakoba, D.J. Kaup**, Shape of the stationary pulse in the strong dispersion management regime, *Electron. Lett.* **34** 1124–1125 (1998).
54. **D.J. Kaup, T.I. Lakoba, Y. Matsuno**, Perturbation theory for the Benjamin-Ono equation, *Inverse Problems* **15** 215–240 (1999).
55. **T.I. Lakoba, J. Yang, D.J. Kaup, B.A. Malomed**, Conditions of stationary pulse propagation in the strong dispersion management regime, *Opt. Commun.* **149** 366–375 (1998).
56. **D.J. Kaup, T.I. Lakoba, Y. Matsuno**, Complete integrability of the Benjamin-Ono equation by means of action-angle variables, *Phys. Lett. A* **238** 123–133 (1998).
57. **D.J. Kaup, T.I. Lakoba, G.E. Thomas**, Relativistic density profiles and current flow in a crossed-field relativistic electron vacuum device, *SPIE Proceedings* **3158** 137–144 (1997).

58. **T.I. Lakoba, D.J. Kaup**, Perturbation theory for the Manakov soliton, and its applications to pulse propagation in randomly birefringent fibers, *Phys. Rev. E* **56** 6147–6165 (1997).
59. **D.J. Kaup, T.I. Lakoba, B.I. Malomed**, Asymmetric solitons in mismatched dual-core optical fibers, *J. Opt. Soc. Am. B* **14** 1199–1206 (1997).
60. **T.I. Lakoba, D.J. Kaup**, Stability of solitons in nonlinear directional coupler with two orthogonal polarizations, *Phys. Rev. E* **56** 4791–4802 (1997).
61. **T.I. Lakoba, D.J. Kaup, B.A. Malomed**, Solitons in nonlinear directional coupler with two orthogonal polarizations, *Phys. Rev. E* **55** 6107–6120 (1997).
62. **T.I. Lakoba**, Concerning the equations governing nonlinear pulse propagation in randomly birefringent fibers, *J. Opt. Soc. Am. B* **13**, 2006–2011 (1996).
63. **D.J. Kaup, T.I. Lakoba**, Variational method: how it can give rise to false instabilities, *J. Math. Phys.* **37** 3442–3462 (1996).
64. **D.J. Kaup, T.I. Lakoba**, Squared eigenfunctions of the Massive Thirring Model in laboratory coordinates, *J. Math. Phys.* **37** 308–323 (1996).
65. **T.I. Lakoba**, Coherent pulse propagation in a discrete non-Bragg resonant medium, *Phys. Lett. A* **196** 55–64 (1994).
66. **T.I. Lakoba, B.I. Mantsyzov**, Coherent interaction between a light pulse and the nonlinear inhomogeneous Bragg lattice, *Bull. Russ. Acad. Sci. (Physics)* **56** 1205 (1992).
67. **T.I. Lakoba, B.I. Mantsyzov**, Delayed reflection of a pulse from a nonlinear Bragg grating: a breather-like behavior, *J. Quant. Nonlin. Phenom.* (1992).
68. **T.I. Lakoba**, Brownian motion in weakly nonlinear systems subjected to Gaussian fluctuations with arbitrary correlation time, *Moscow University: Physics Bulletin* **47** n.4, 3–8 (1992).

#### INVITED PRESENTATIONS AT RESEARCH INSTITUTIONS

1. Iterative numerical methods for finding solitary waves, and techniques for their acceleration, *University of New Mexico* (November 2021).
2. Providing stability to numerical schemes based on the Method of Characteristics by modifying boundary conditions, *Rensselaer Polytechnic Institute* (February 2020).
3. Long-time numerical integration of the generalized nonlinear Schrödinger equation with time steps exceeding the instability threshold, *Los Alamos National Laboratory* (November 2015).
4. Unusual properties of numerical instability of the split-step method applied to an NLS soliton, *University of Illinois at Urbana-Champaign* (March 2012).
5. Recent progress in multi-channel 2R regeneration, *Bell Labs, Holmdel, NJ* (March 2008).
6. A Hermite–Gaussian expansion for pulse propagation in strongly dispersion-managed fibers, *Brown University* (July 1998).
7. Conventional soliton propagation in optical fibers versus dispersion management, *The University of Vermont* (April 1998).
8. Perturbation theory for the Benjamin–Ono equation, *Los Alamos National Laboratory* (July 1997).
9. Applications of the variational method to nonlinear solitary waves, *Rensselaer Polytechnic Institute* (September 1996).

#### CONFERENCE PRESENTATIONS

1. (Invited) **T.I. Lakoba**, Logistics of Running a Hybrid Problem-Solving Workshop Involving Graduate Students, *SIAM Conf. Appl. Math. Education* (Pittsburgh, PA, July 2022).
2. **C. Guo, M. Vasilyev, T.I. Lakoba**, Amplitude regeneration and phase noise suppression of an 8-PSK signal by an attenuation-imbalanced NOLM, *CLEO: Science and Innovations*, paper STh5M.6; (San Jose, CA, May 2022).
3. (Invited) **T.I. Lakoba**, Reductions of Hartree–Fock equations in a periodic external potential and their efficient iterative solution, *12th IMACS Conf. Nonlin. Evol. Eqs. & Wave Phenom.* (Athens, GA, April 2022).
4. **M. Elsayed, S.W. Kim, T. Lakoba, A. Del Maestro, V. Kotov**, 2D Extended Bose–Hubbard Model for Light Atoms on Graphene, *Amer. Phys. Soc. Meeting*, paper D49.006; (Chicago, IL, March 2022).
5. **S.W. Kim, M. Elsayed, N. Nichols, C. Wexler, J. Vanegas, T. Lakoba, V. Kotov, A. Del Maestro**, Strain-induced Superfluid–Insulator Transition for Atoms Adsorbed on Graphene, *Amer. Phys. Soc. Meeting*, paper D49.005; (Chicago, IL, March 2022).
6. **V. Kotov, B. Uchoa, T. Lakoba**, Coulomb Interactions and Renormalization of semi-Dirac fermions, *Amer. Phys. Soc. Meeting*, paper F68.005; (Chicago, IL, March 2022).
7. (Invited) **T.I. Lakoba**, Efficient solution of Hartree–Fock equations in a periodic external potential, *AMS Fall West. Sect. Mtg.* (virtual, October 2021).
8. (Invited) **T.I. Lakoba**, Instabilities, and their suppression, in numerical simulations of the Gross–Neveu equations, *Internat. Conf. “Dirac-2019: Waves, Particles, Spectra”* (St. Petersburg, Russia, July 2019).
9. **J.S. Jewell, T.I. Lakoba**, Higher-order Runge–Kutta type schemes based on the Method of Characteristics for hyperbolic equations with crossing characteristics, *Applied Math Days at RPI* (Troy, NY, April 2019).
10. (Invited) **T.I. Lakoba, J.S. Jewell**, Higher-order Runge–Kutta-type schemes based on the method of characteristics for hyperbolic equations with crossing characteristics, *11th IMACS Conf. Nonlin. Evol. Eqs. & Wave Phenom.* (Athens, GA, April 2019).
11. (Invited) **L. Li, P. Patki, T.I. Lakoba, and M. Vasilyev**, Multi-channel all-optical signal regeneration, *OFC* (San Diego, CA, March 2019).
12. (Invited) **L. Li, P. Patki, T.I. Lakoba, and M. Vasilyev**, All-optical regeneration of multiple WDM channels, *Metro & Data Center Optical Networks and Short-Reach Links II (part of the SPIE OPTO / Photonics West)* (San Francisco, CA, February 2019).
13. (Invited) **L. Li, P. Patki, T.I. Lakoba, and M. Vasilyev**, Simultaneous nonlinear-optical processing of multiple WDM channels, *IEEE Photon. Soc.: Photonics in Switching & Computing*, paper Fr4A.1; (Limassol, Cyprus, Sept. 2018).
14. **J.S. Jewell, T.I. Lakoba**, Runge–Kutta methods for hyperbolic equations with crossing characteristics, *Applied Math Days at RPI* (Troy, NY, April 2018).
15. (Invited) **T.I. Lakoba**, (Unconditional) numerical instability of the Fourier split-step method in simulations of the soliton of the Gross–Neveu equations, *10th IMACS Conf. on Nonlin. Evol. Eqs. & Wave Phenom.* (Athens, GA, March 2017).
16. (Invited) **T.I. Lakoba, Z. Deng**, Studies of (in)stability of the numerical Method of Characteristics applied to conservative hyperbolic PDEs, *11th AIMS Conference on Dynamical systems, Differential equations, and Applications* (Orlando, FL, July 2016).
17. **L. Li, Y. Kwon, B. Campbell, T.I. Lakoba, M. Vasilyev**, 2R regeneration of 12 WDM channels with 100 GHz spacing in a group-delay-managed nonlinear medium, *OFC* (Anaheim, CA, March 2016).

18. **N. Wilson, O. Myers, V. Kotov, T.I. Lakoba**, Exotic charge polarization near Dirac cone merging transition in graphene-based systems, *American Phys. Soc. Meeting* (Baltimore, MD, March 2016).
19. **L. Li, M. Vasilyev, T.I. Lakoba**, Investigation of 3-channel all-optical regeneration in a group-delay-managed nonlinear medium, *CLEO: Laser Science to Photonic Applications* (San Jose, CA, May 2015).
20. (Invited) **T.I. Lakoba, Y. Zhang, S. Duo**, Long-time numerical integration of nonlinear Schrödinger equation with time steps exceeding the instability threshold, *9th IMACS Conf. on Nonlin. Evol. Eqs. & Wave Phenom.* (Athens, GA, March 2015).
21. (Invited) **T.I. Lakoba, M. Vasilyev**, Challenges of phase-preserving regeneration of a single and multiple channels in a NALM-based regenerator, *Workshop on Multichannel All-optical Regeneration* (Aston University, UK, Oct. 2014).
22. **G. Ghanavati, P.D.H. Hines, T.I. Lakoba**, Investigating early warning signs of oscillatory instability in simulated phasor measurements, *IEEE Power Eng. Soc. Gen. Meeting- PES* (Washington, DC, July 2014).
23. **L. Li, M. Vasilyev, T.I. Lakoba**, Phase noise suppression of a 50%-duty-cycle RZ-DPSK signal by using an attenuation-imbalanced NOLM, *IEEE Photon. Soc. Summer Topical Meeting on Nonlin.-Opt. Signal Process.* (Montreal, Canada, July 2014).
24. **L. Li, M. Vasilyev, T.I. Lakoba**, Nonlinear-optical-loop-mirror-based, phase-preserving 2R regeneration of a high-duty-cycle RZ-DPSK signal, *CLEO: Applications and Technology* (San Jose, CA, June 2014).
25. **G. Ghanavati, P.D.H. Hines, T.I. Lakoba, E. Cotilla-Sanchez**, Calculation of the autocorrelation function of the stochastic single-machine infinite bus system, *North Am. Power Symp. - NAPS* (Manhattan, KS, September 2013).
26. (Invited) **T.I. Lakoba**, Instability of the time-splitting and related methods near localized solutions of nonlinear Schrödinger-type equations, *Scient. Comp. & Diff. Eqs. - SciCADE* (Valladolid, Spain, September 2013).
27. (Invited) **T.I. Lakoba**, Instability analysis of the split-step method via a modified linearized nonlinear Schrödinger equation, *8th IMACS Conf. on Nonlin. Evol. Eqs. & Wave Phenom.* (Athens, GA, March 2013).
28. **T.I. Lakoba**, Instability of the finite-difference split-step method on the background of a soliton of the nonlinear Schrödinger equation, *SIAM Ann. Meeting* (Minneapolis, MN, July 2012).
29. **P. Patki, T.I. Lakoba, M. Vasilyev**, Multi-channel 2R regeneration in a group-delay-managed nonlinear medium, *15th Intr'l SAOT Workshop on All-Opt. Signal Regen.* (Erlangen, Germany, September 2011).
30. (Invited) **T.I. Lakoba, M. Vasilyev**, Quasi-parallelized Multicanonical Monte Carlo method for highly nonlinear systems, with application to all-optical regeneration, *9th Intr'l Conf. of Numer. Anal. & Appl. Math. - ICNAAM* (Halkidiki, Greece, September 2011).
31. **T.I. Lakoba**, Instability of the split-step Fourier method on the background of a soliton of the nonlinear Schrödinger equation, *SIAM Nonlin. Waves & Coher. Structures* (Philadelphia, PA, August 2010).
32. (Invited) **P.G. Patki, M. Vasilyev, T.I. Lakoba**, Multi-channel all-optical regeneration, *IEEE Photon. Soc. Summer Topicals 2010* (Rivera Maya, Mexico, July 2010).
33. (Invited) **T.I. Lakoba**, Modifications of the Conjugate Gradient method for finding fundamental solitary waves; *and* Instability of the split-step Fourier method on the background of a soliton of the nonlinear Schrödinger equation, *5th Conf. on Finite-Diff. Meth.: Theory and Applications* (Lozenetz, Bulgaria, June 2010).

34. **T.I. Lakoba**, Extension of the Conjugate Gradient method for finding fundamental solitary waves, *6th IMACS Conf. on Nonlin. Evol. Eqs. & Wave Phenom.* (Athens, GA, March 2009).
35. (Invited) **M. Vasilyev, P.G. Patki, T.I. Lakoba**, All-optical regeneration of multi-wavelength signals, *IEEE LEOS Europ. Winter Topical on Nonlin. Processing in Opt. Fibres* (Innsbruck, Austria, January 2009).
36. (Invited) **T.I. Lakoba, M. Vasilyev**, Multichannel nonlinear signal processing: Recent progress in all-optical regeneration of WDM signals, *SIAM Nonlin. Waves and Coher. Structures* (Rome, Italy, July 2008).
37. (Invited) **T.I. Lakoba**, Iterative numerical methods for finding solitary waves, and techniques for their acceleration, *World Congr. of Nonlin. Analysts* (Orlando, FL, July 2008).
38. **T.I. Lakoba, M. Vasilyev**, Multicanonical Monte Carlo study of noisy signal evolution in 2R all-optical regenerators with normal and anomalous average dispersions, *CLEO/QELS* (San Jose, CA, May 2008).
39. (Invited) **M. Vasilyev, T. I. Lakoba, P. G. Patki**, Multi-wavelength all-optical regeneration, *OFC/NFOEC* (San Diego, CA, February 2008).
40. **P.G. Patki, V. Stelmakh, M. Annamalai, M. Vasilyev, T.I. Lakoba**, Single-channel 2R Regeneration in Quasi-Continuous Dispersion-Managed Nonlinear Medium, *Frontiers in Opt.* (Rochester, NY, October 2007).
41. **T.I. Lakoba, M. Vasilyev**, Dispersion-Managed Multichannel 2R Regeneration With Large Anomalous Average Dispersion, *Nonlin. Photon.* (Quebec City, Quebec, September 2007).
42. **T.I. Lakoba, M. Vasilyev**, Multicanonical Monte Carlo Simulations of the Dynamic Power Transfer Characteristic, *Nonlin. Photon.* (Quebec City, Quebec, September 2007).
43. **P.G. Patki, V. Stelmakh, M. Annamalai, M. Vasilyev, T.I. Lakoba**, Recirculating-Loop Study of Dispersion-Managed 2R Regeneration, *CLEO/QELS* (Baltimore, MD, May 2007).
44. **T.I. Lakoba, J. Yang**, A generalized Petviashvili iteration method for scalar and vector Hamiltonian equations with arbitrary form of nonlinearity, *SIAM Nonlin. Waves and Coher. Structures* (Seattle, WA, October 2006).
45. **J. Yang, T.I. Lakoba**, Universally-convergent squared-operator iteration methods for solitary waves in general nonlinear wave equations, *SIAM Nonlin. Waves & Coher. Structures* (Seattle, WA, October 2006).
46. **J. Yang, T.I. Lakoba**, Convergence and acceleration of imaginary-time evolution methods for solitary waves in arbitrary spatial dimensions, *SIAM Nonlin. Waves & Coher. Structures* (Seattle, WA, October 2006).
47. (Invited) **D. Grosz, A. Agarwal, A.P. Küng, D.N. Maywar, T.I. Lakoba**, The power of dispersion management for 10-Gb/s and 40-Gb/s systems, *OFC/NFOEC* (Anaheim, CA, March 2006).
48. **M. Vasilyev, T.I. Lakoba**, Fiber-based all-optical 2R regeneration of multiple WDM channels, *OFC/NFOEC* (Anaheim, CA, March 2005).
49. (Invited) **T.I. Lakoba**, Raman interaction in many-wavelength optical systems: Direct perturbation theory and Lax pairs, *SIAM Nonlin. Waves & Coher. Structures* (Orlando, FL, October 2004).
50. **C.J. McKinstrie, T.I. Lakoba**, Probability-density function for energy perturbations for optical pulses in 10-Gb/s communication systems, *CLEO/QELS* (San-Francisco, CA, May 2004).
51. (Tutorial) **T.I. Lakoba, R.O. Moore**, Application of the Fokker-Planck equation and importance sampling techniques to modeling soliton jitter phenomena, *Frontiers in Opt.* (Tucson, AZ, October 2003).
52. **T.I. Lakoba**, Using phase modulation to suppress ghost pulses in high-speed optical transmission, *Frontiers in Opt.* (Tucson, AZ, October 2003).

53. **T.I. Lakoba**, Effect of RIN of a Raman co-pump on the BER for long-haul transmission, *Frontiers in Opt.* (Tucson, AZ, October 2003).
54. **T.I. Lakoba, D.J. Kaup, N.M. Finkelstein**, Continuous time-space simulations of pedestrian crowd behavior, *SIAM Math. for Industry Conf.* (Toronto, Canada, October 2003).
55. **C. Dorrer, D. Maywar, T.I. Lakoba**, Polarization mode dispersion study of a circulating loop, *CLEO/QELS* (Baltimore, MD, June 2003).
56. **Y.H.Kao, A.Leven, Y.Baeyens, Y.K.Chen, F.D.Bannon, W.Fang, D.F.Grosz, A.P.Kung, D.N.Maywar, T.I.Lakoba, A.Agarwal, S.Banerjee, T.H.Wood**, 10 Gb/s soliton generation for ULH transmission using a wideband GaAs pHEMT amplifier, *OFC* (Atlanta, GA, March 2003).
57. **C.J. McKinstrie, C. Xie, T.I. Lakoba**, Phase jitter in single-channel soliton systems, *Nonlin. Opt. Conf.* (Maui, Hawaii, July-August 2002).
58. (Invited) **T.I. Lakoba**, Mechanisms leading to ghost-pulse generation in strongly pulse-overlapped transmission, *Soliton Eqs.: Applications and Theory* (Colorado Springs, CO, August 2001).
59. **J. Santhanam, C.J. McKinstrie, T.I. Lakoba, G.P. Agrawal**, Effects of pre- and post- compensation on timing jitter in dispersion-managed systems, *CLEO/QELS* (Baltimore, MD, May 2001).
60. **T.I. Lakoba, R.S. Tasgal**, Novel mechanism of suppression of radiation by dispersion-managed solitons in randomly birefringent fibers, *CLEO/QELS* (San Francisco, CA, May 2000).
61. **T.I. Lakoba, Z.M. Liao, G.P. Agrawal**, Optimization issues for dispersion-managed soliton systems, *OSA Ann. Meeting* (Santa Clara, CA, September 1999).
62. **T.I. Lakoba, Z.M. Liao, G.P. Agrawal**, Optimization issues for dispersion-managed soliton systems, *OSA Ann. Meeting* (Santa Clara, CA, September 1999).
63. **G.P. Agrawal, Z.M. Liao, T.I. Lakoba**, Distributed amplification of optical solitons, *Nonlin. Guided Waves & Their Applications* (Dijon, France, September 1999).
64. **T.I. Lakoba, G.P. Agrawal**, Effect of third-order dispersion on dispersion-managed solitons, *CLEO/QELS* (Baltimore, MD, May 1999).
65. **D.J. Kaup, T.I. Lakoba**, Influence of the Raman effect on dispersion-managed solitons and their interchannel collisions, *OSA Ann. Meeting* (Baltimore, MD, October 1998).
66. **T.I. Lakoba, D.J. Kaup**, A Hermite-Gaussian expansion for pulse propagation in strongly dispersion-managed fibers, *Novel Solitons and Nonlin. Period. Structures* (Victoria, British Columbia, Canada, March 1998).
67. **T.I. Lakoba, D.J. Kaup**, A systematic perturbation theory for pulses in strongly dispersion-managed fibers, *Potsdam Workshop on Solitons* (Potsdam, NY, February 1998).
68. **D.J. Kaup, T.I. Lakoba, Y. Matsuno**, Perturbation theory for the Benjamin-Ono equation, *Nonlin. Waves & Solitons* (Los Alamos, NM, May 1997).
69. **T.I. Lakoba, D.J. Kaup**, Perturbation theory for the Manakov soliton, and its applications to pulse propagation in randomly birefringent fibers, (Los Alamos, NM, May 1997).
70. **D.J. Kaup, T.I. Lakoba, B.A. Malomed**, Asymmetric solitons in mismatched dual-core optical fibers, *CLEO/QELS* (Los Angeles, CA, June 1996).
71. **T.I. Lakoba, D.J. Kaup, B.A. Malomed**, Solitons and their stability in the nonlinear directional coupler with two orthogonal polarizations, *Math. Meth. in Nonlin. Opt.* (Univ. of Notre Dame, South Bend, IN, April 1996).
72. **T.I. Lakoba**, On the equations governing nonlinear pulse propagation in randomly birefringent fibers, *AFOSS/ACMS Nonlin. Opt. Workshop* (Tucson, AZ, October 1995).
73. **D.J. Kaup, T.I. Lakoba**, How the variational method can give rise to false instabilities, *Nonlin. Phys.: Theory and experiment* (Gallipoli, Italy, June-July 1995).



74. **T.I. Lakoba, D.J. Kaup**, Oscillating propagation of an optical solitary pulse in a resonance discrete medium — a higher-order phenomenon, *The XI Winter School in Theor. Phys. and Dynam. Systems* (Jerusalem, Israel, December 1993 – January 1994).
75. **T.I. Lakoba, B.I. Mantsyzov**, Coherent interaction between a light pulse and the nonlinear inhomogeneous Bragg lattice, *The XI Intn'l Conf. on Coher. & Nonlin. Opt.* (St.-Petersburg, Russia, September 1991).
76. **T.I. Lakoba, B.I. Mantsyzov**, On boundary conditions to the problem of incidence of a pulse on a discrete Bragg grating, *Math. Meth. in Diffraction Theory* (Moscow, Russia, May 1990).