

# KENNETH DEAN MCLAUGHLIN

The Evelyn and John G. Phillips Distinguished Chair in Mathematics

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✉ Tulane University, 6823 St. Charles Ave, New Orleans, LA 70118

## ACADEMIC POSITIONS

The Evelyn and John G. Phillips  
Distinguished Chair in Mathematics

**Tulane University**

📅 August 2022 – Present

📍 New Orleans, Louisiana

Chair and Professor, Department of Mathematics

**Colorado State University**

📅 July 2016 – August 2022

📍 Fort Collins, Colorado

Head, Department of Mathematics

**University of Arizona**

📅 July 2014 – June 2016

📍 Tucson, Arizona

Professor of Mathematics

**Department of Mathematics, University of Arizona**

📅 2005-2014

Professor Titular

**Departamento de Matemática, Universidade de Brasília**

📅 2009-2010

Associate Professor of Mathematics

**Department of Mathematics, University of Arizona**

📅 2004-2005

Director of Graduate Studies

**University of North Carolina, Chapel Hill**

📅 2003 – 2004

📍 Chapel Hill, North Carolina

Associate Professor of Mathematics

**Department of Mathematics, University of North Carolina, Chapel Hill**

📅 2000-2004

Assistant Professor of Mathematics

**Department of Mathematics, University of Arizona**

📅 1997-2000

## INVITED PRESENTATIONS, 2017-2022

**University of Bristol Mathematical Physics Seminar, "Analysis of solitonic interactions, and an initial connection to random matrix theory", December 16, 2022**

**University of Bristol Mathematical Physics Introductory Lecture, "Ancient and modern approaches to the asymptotic analysis of integrals of the form  $e^{-n\phi(s)} ds$ , using the example of Stirling's formula", December 2, 2022**

**Loughborough University Geometry and Mathematical Physics Seminar, "Analysis of solitonic interactions, and random matrix theory", November 2, 2022**

## EDUCATION

Ph.D. in Mathematics

**New York University**

📅 1994

Thesis: A Continuum Limit of the Toda Lattice

B.A. in Mathematics

**New York University**

📅 Sept 1987 – December 1989

## VISITING POSITIONS

Royal Society Wolfson Fellowship

**University of Bristol**

📅 Fall, 2022 and 2023 📍 Bristol, U.K.

Research Professor

**Mathematical Sciences Research Institute**

📅 Fall 2021

📍 Berkeley, California

Chercheur, CNRS

**Université de Bourgogne**

📅 1 Sept. - 30 Nov., 2013 📍 Dijon, France

Visiting Professor

**Scuola Internazionale Superiore di Studi Avanzati**

📅 June 7-July 7, 2012

📍 Trieste, Italy

Professeur Invité

**Université de Bourgogne**

📅 May 9-June 7, 2012

📍 Dijon, France

Research Professor

**Mathematical Sciences Research Institute**

📅 Fall 2010

📍 Berkeley, California

Visiting Faculty

**Pontificia Universidade Católica do Rio de Janeiro**

📅 March-July, 2003

📍 Rio de Janeiro, Brasil

Kapita Selecta Visiting Professor

**Katholieke Universiteit Leuven**

📅 April 15-June 1, 2002

📍 Leuven, Belgium

Professeur Invité

**Ecole Normale Supérieur**

📅 June 2001

📍 Paris, France

Professeur Invité

**Université de Paris VII**

📅 June 2000

📍 Paris, France

Research Member

Wolfgang Pauli Institute Workshop on Nonlinear dispersive equations – Inverse scattering and PDE methods, "Analysis of soliton interactions and random matrix theory", Vienna, October 20, 2022

Newton Institute for Mathematical Sciences Workshop on Statistical Mechanics, Integrability and dispersive hydrodynamics, "Random matrices, random solitons, and random rational functions, and soliton gasses", October 18, 2022

Oxford University Random Matrix Theory Seminar, "Analysis of solitonic interactions, and random matrix theory", October 10, 2022

Newton Institute for Mathematical Sciences Workshop, Analysis of dispersive systems, "Asymptotic analysis of solitons: examples and open problems", September 8, 2022

Newton Institute for Mathematical Sciences, Special Semester on Dispersive hydrodynamics: mathematics, simulation and experiments, with applications in nonlinear waves. Two Introductory Lectures: "Analysis of Riemann - Hilbert problems, some nuts and bolts, and applications to the detailed description of solitonic interactions for the KdV equation and MKdV equation", August 3-4, 2022

University of Washington Conference on Random Matrix Theory and Numerical Linear Algebra, "Interactions between solitons and with other nonlinear wave fields", Monday, June 20, 2022

Scuola Internazionale Superiore di Studi Avanzati (SISSA) Excursions in Integrability Conference, "On the longtime behavior of solutions of the KdV equation on the line: use of Riemann-Hilbert and  $\bar{d}$ -bar methods for the analysis", May 24, 2022

The Twelfth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, "Interactions between solitons", March 30, 2022, Athens, GA

CRM, Montreal, Math Phys. Seminar, "Some intuition and some asymptotic analysis: from two solitons to a continuum limit of solitons", November 9, 2021, Zoom presentation

MSRI Workshop: Integrable Structures in Random Matrix Theory and Beyond, "Asymptotic Analysis of the Interaction Between a Soliton and a Regular Gas of Solitons", October 22, 2021, MSRI, Berkeley, CA

Simons workshop on Tau Functions, Correlation Functions and Applications, "a soliton interacting with a regular gas of solitons", August 30-September 3, 2021, Zoom presentation

Integrable Systems in Geometry and Mathematical Physics, Conference in Memory of Boris Dubrovin, "Soliton versus the gas", June 30, 2020, Zoom presentation

Approximation Theory and Harmonic analysis, a Brazilian Webinar, "Orthogonal polynomial ensembles, random matrices, and random tilings", April 15, 2020, Zoom presentation

Rocky Mountain Algebraic Combinatorics Seminar, "Orthogonal polynomial ensembles, random matrices, and random tilings", April 9, 2020, Zoom presentation

Oregon State University Mathematics Department Colloquium, "Orthogonal polynomial ensembles, random matrices, and random tilings", April 12, 2020, Zoom presentation

Mathematical Sciences Research Institute,  
Program in Random Matrix Models and Their Applications

📅 January-July, 1999 📍 Berkeley, California

## PRESENTATIONS, CONT'D

Isaac Newton Institute Workshop: Complex analysis in mathematical physics and applications, "Asymptotic analysis of Riemann-Hilbert problems and applications", October 28, 2019, Cambridge University, UK

ICTP School and Workshop on Random Matrix Theory and Point Processes, "Asymptotics of orthogonal polynomial ensembles via integrable methods", September 24, 2019, Trieste, Italy

Indiana University Purdue University Indianapolis Mathematics Department Colloquium, "Some interesting phenomena, limits, and a few open questions regarding integrable PDEs (linear and nonlinear)", September 13, 2019, Indianapolis, IN

3rd Institute of Mathematics and its Applications Conference on Nonlinearity and Coherent Structures, "An explicit Riemann-Hilbert characterization of periodic solutions of the KdV equation", July 11, 2019, Newcastle, UK

Workshop - Intégrabilité et équations dispersives nonlinéaires, CIRM, "An explicit Riemann-Hilbert characterization of periodic solutions of the KdV equation", June 25, 2019, Luminy, France

2019 Workshop on Nonlinear Dispersive Partial Differential Equations and Inverse Scattering, Fields Institute for Research in Mathematical Sciences, "An explicit Riemann-Hilbert characterization of periodic solutions of the KdV equation", May 23, 2019, Toronto, Canada

University of Wyoming Mathematics Department Colloquium, "The quest to analyze space-time correlations, in integrable systems", April 29, 2019, Laramie, Wyoming

Research School, Special Semester on Integrability and Randomness in Mathematical Physics, Centre International de Rencontres Mathématiques, "Correlation functions for some integrable systems with random initial data", March 11, 2019, Luminy, France

Special Semester on Integrability and Randomness in Mathematical Physics, "Mini-course on correlation functions for some integrable systems with random initial data", joint with Professor Tamara Grava, March 11-15, 2019, CIRM

# PUBLICATIONS

## Journal Articles

- G. Mazzuca, T. Grava, T. Kriecherbauer, K. D. T.-R. McLaughlin, C. Mendl, and H. Spohn, "Equilibrium spacetime correlations of the Toda lattice on the hydrodynamic scale," *arXiv:2301.02431*,
- M. Girotti, T. Grava, R. Jenkins, K. D. T.-R. McLaughlin, and O. Miñakov, "Soliton v. the gas: Fredholm determinants, analysis, and the rapid oscillations behind the kinetic equation," *arXiv:2205.02601*, 2022.
- M. Girotti, T. Grava, R. Jenkins, and K. D.-R. McLaughlin, "Rigorous asymptotics of a KdV soliton gas," *Communications in Mathematical Physics*, vol. **384**, pp. 733–784, 2021.
- G. Mazzuca, T. Grava, T. Kriecherbauer, and K. McLaughlin, "Correlation functions for a chain of short range oscillators," *Journal of Statistical Physics*, vol. **183**, pp. 1–25, 2021.
- C. Klein, K. McLaughlin, and N. Stoilov, "High precision numerical approach for the Davey-Stewartson II equation for Schwartz class initial data," *Proceedings of the Royal Society A*, vol. **476**, no. # 2239, 17pp, 2020.
- O. Assainova, C. Klein, K.-R. McLaughlin, and P. Miller, "A study of the direct spectral transform for the defocusing Davey-Stewartson II equation the semiclassical limit," *Communications on Pure and Applied Mathematics*, vol. **72**, no. # 7, pp. 1474–1547, 2019.
- R. Jenkins and K. D.-R. McLaughlin, "Behavior of the roots of the Taylor polynomials of Riemann's  $\xi$  function with growing degree," *Constructive Approximation*, vol. **49**, no. # 2, pp. 265–293, 2019.
- C. Klein, K. McLaughlin, and N. Stoilov, "Spectral approach to the scattering map for the semi-classical defocusing Davey-Stewartson II equation," *Physica D: Nonlinear Phenomena*, 9 pp. 2019.
- K. TR McLaughlin and P. V. Nabelek, "A Riemann-Hilbert problem approach to infinite gap Hill's operators and the Korteweg-de Vries equation," *International Mathematics Research Notices*, pp. 1–65, 2019.
- M. Borghese, R. Jenkins, and K. D.-R. McLaughlin, "Long time asymptotic behavior of the focusing nonlinear Schrödinger equation," *Annales de l'Institut Henri Poincaré C, Analyse non linéaire*, vol. **35**, no. # 4, pp. 887–920, 2018.
- M. Dieng, K. D.-R. McLaughlin, and P. D. Miller, "Dispersive asymptotics for linear and integrable equations by the d-bar steepest descent method," *Nonlinear Dispersive Partial Differential Equations and Inverse Scattering, Fields Institute Publications*, pp. 253–294, 2018. *arXiv: 1809.01222*.
- C. Klein and K. D. T.-R. McLaughlin, "Spectral approach to d-bar problems," *Communications on Pure and Applied Mathematics*, vol. **70**, no. # 6, pp. 1052–1083, 2017.
- F. Balogh, M. Bertola, S.-Y. Lee, and K. D. T.-R. McLaughlin, "Strong asymptotics of the orthogonal polynomials with respect to a measure supported on the plane," *Communications on Pure and Applied Mathematics*, vol. **68**, no. # 1, pp. 112–172, 2015.
- T. Claeys, T. Grava, and K.-R. McLaughlin, "Asymptotics for the partition function in two-cut random matrix models," *Communications in Mathematical Physics*, vol. **339**, no. # 2, pp. 513–587, 2015.
- R. Jenkins and K. D. T.-R. McLaughlin, "Semiclassical limit of focusing NLS for a family of square barrier initial data," *Communications on Pure and Applied Mathematics*, vol. **67**, no. # 2, pp. 246–320, 2014.
- K. D.-R. McLaughlin and N. J. Pitt, "On ringing effects near jump discontinuities for periodic solutions to dispersive partial differential equations," 2011. *arXiv: 1107.1571*.

Midwestern Workshop on Asymptotic Analysis, Plenary Lecture, "Asymptotic analysis of Riemann-Hilbert problems, with applications to integrable nonlinear wave equations", October 5, 2018, Bloomington, IN

Southwestern Undergraduate Mathematics Research Conference, University of New Mexico, "Mad Limits at the Edge of Reason", May 14, 2018, Albuquerque, NM

DISPERSIVE EQUATIONS WITH RANDOM INITIAL DATA, Heilbronn Institute for Mathematical Research, University of Bristol, "The quest to analyze space-time correlations, in integrable systems", January 12, 2018, Bristol, UK

CU Boulder Mathematics Colloquium, "Random matrices, d-bar problems, and approximation theory", December 12, 2017, Boulder, CO

Colorado Nonlinear Days Conference, University of Colorado Colorado Springs, "asymptotic analysis of d-bar problems and applications", November 11, 2017, Colorado Springs, CO

Pacific Rim Mathematical Association Third Congress, "Random matrices, d-bar problems, orthogonal polynomials, and Taylor approximants "on the edge"", August 14, 2017, Oaxaca, Mexico

## PROJECTS

National Science Foundation Postdoctoral Research Fellowship  
**Riemann-Hilbert problems and integrable systems**

📅 1995-1998

National Science Foundation Grant  
No. DMS-9970328

**Riemann-Hilbert Problems in Random Matrix Theory, Approximation Theory, and Integrable Systems**

📅 1999-2002

💰 \$79,764.00

National Science Foundation Grant  
No. DMS-0200749

**Riemann-Hilbert Problems in Random Matrix Theory, Approximation Theory, and Integrable Systems**











📅 2002-2004

💰 \$107,000.00

National Science Foundation FRG Grant  
**Collaborative Research in Semiclassical Asymptotic Questions in Integrable Nonlinear Wave Theory**

📅 2004-2008

💰 \$400,000.00

- J. Newport and K.-R. McLaughlin, "Solutions to the nonlinear schrödinger equation with sequences of initial data converging to a dirac mass," *Physica D: Nonlinear Phenomena*, vol. **239**, no. # 23-24, pp. 2050–2056, 2010.
  - M. Dieng and K.-R. McLaughlin, "Long-time asymptotics for the nls equation via dbar methods," 2008. arXiv: 0805.2807.
  - N. M. Ercolani, M. KD TR, and V. Pierce, "Random matrices, graphical enumeration and the continuum limit of toda lattices," *Communications in Mathematical Physics*, vol. **278**, no. # 1, pp. 31–81, 2008.
  - N. Ercolani and K. McLaughlin, "A quick derivation of the loop equations for random matrices," *Probability, Geometry, and Integrable Systems*, Mathematical Sciences Research Institute Publications, 2008. arXiv: math-ph/0609048.
  - K. McLaughlin, A. Vartanian, and X. Zhou, "Asymptotics of laurent polynomials of odd degree orthogonal with respect to varying exponential weights," *Constructive Approximation*, vol. **27**, no. # 2, pp. 149–202, 2008.
  - K.-R. McLaughlin and P. Miller, "The  $\bar{\partial}$  steepest descent method for orthogonal polynomials on the real line with varying weights," *International Mathematics Research Notices*, vol. **2008**, pp. 1–66, 2008.
  - K.-R. McLaughlin, A. Vartanian, and X. Zhou, "Asymptotics of recurrence relation coefficients, hankel determinant ratios, and root products associated with laurent polynomials orthogonal with respect to varying exponential weights," *Acta Applicandae Mathematicae*, vol. **100**, no. # 1, pp. 39–104, 2008.
  - K.-R. McLaughlin, A. Vartanian, and X. Zhou, "Rational functions with a general distribution of poles on the real line orthogonal with respect to varying exponential weights: I," *Mathematical Physics, Analysis and Geometry*, vol. **11**, no. # 3-4, p. 187, 2008.
  - K. T. McLaughlin, "Asymptotic analysis of random matrices with external source and a family of algebraic curves," *Nonlinearity*, vol. **20**, no. # 7, p. 1547, 2007.
  - A. Martinez-Finkelshtein, K. T.-R. McLaughlin, and E. Saff, "Asymptotics of orthogonal polynomials with respect to an analytic weight with algebraic singularities on the circle," *International Mathematics Research Notices*, vol. **2006**, no. # 9, pp. 91 426–91 426, 2006.
  - A. Martinez-Finkelshtein, K.-R. McLaughlin, and E. Saff, "Szego orthogonal polynomials with respect to an analytic weight: Canonical representation and strong asymptotics," *Constructive Approximation*, vol. **24**, no. # 3, pp. 319–363, 2006.
  - K.-R. McLaughlin and P. Miller, "The d-bar steepest descent method and the asymptotic behavior of polynomials orthogonal on the unit circle with fixed and exponentially varying nonanalytic weights," *International Mathematics Research Papers*, vol. **2006**, 2006.
  - K.-R. McLaughlin, A. H. Vartanian, and X. Zhou, "Asymptotics of laurent polynomials of even degree orthogonal with respect to varying exponential weights," *International Mathematics Research Papers*, vol. **2006**, 2006.
  - J. C. DiFranco and K. T.-R. McLaughlin, "A nonlinear gibbs-type phenomenon for the defocusing nonlinear schrödinger equation," *International Mathematics Research Papers*, vol. **2005**, no. # 8, pp. 403–459, 2005.
  - A. Kuijlaars and K.-R. McLaughlin, "A riemann–hilbert problem for biorthogonal polynomials," *Journal of computational and applied mathematics*, vol. **178**, no. # 1-2, pp. 313–320, 2005.
  - A. Kuijlaars and K. T. McLaughlin, "Asymptotic zero behavior of laguerre polynomials with negative parameter," *Constructive Approximation*, vol. **20**, no. # 4, pp. 497–523, 2004.
- National Science Foundation Grant No. DMS-0800979  
**Universality in random matrices and integrable systems: asymptotic analysis via Riemann-Hilbert and d-bar methods**  
 2008-2011  \$430,000.00
- National Science Foundation Grant No. DMS-1401268  
**Universality and semi-classical behavior in 2+1 dimensional integrable systems and random matrices**  
 2014-2017  \$120,000.00
- National Science Foundation Grant No. DMS-1733967  
**Universality and semi-classical behavior in 2+1 dimensional integrable systems and random matrices**  
 2017-2019  Cont. of DMS-1401258
- National Science Foundation Grant No. DMS- 1901407  
**School, Workshop, and Conference on Integrability and Randomness in Mathematical Physics**  
 2019  \$35,000.00
-  **Books**
- J. Baik, T. Kriecherbauer, L.-C. Li, K. McLaughlin, and C. Tomei, *Integrable Systems and Random Matrices: In Honor of Percy Deift: Conference on Integrable Systems, Random Matrices, and Applications in Honor of Percy Deift's 60th Birthday, May 22-26, 2006, Courant Institute of Mathematical Sciences, New York University, New York*. American Mathematical Soc., 2008, vol. **458**.
  - J. Baik, T. Kriecherbauer, K. T.-R. McLaughlin, and P. D. Miller, *Discrete Orthogonal Polynomials: Asymptotics and Applications* (Annals of Mathematics, Studies Series # 164). Princeton University Press, 2007, pp. 1–170.
  - S. Kamvissis, K. D.-R. McLaughlin, and P. D. Miller, *Semiclassical Soliton Ensembles for the Focusing Nonlinear Schrodinger Equation* (Annals of Mathematics, Studies Series # 154). Princeton University Press, 2003, pp. 1–265.
  - K. T. McLaughlin and X. Zhou, *Recent Developments in Integrable Systems and Riemann-Hilbert Problems: AMS Special Session, Integrable Systems and Riemann-Hilbert Problems, November 10-12, 2000, University of Alabama, Birmingham, Alabama*. American Mathematical Soc., 2003.
  - P. Deift and K. McLaughlin, *A continuum limit of the Toda lattice*. 1998, vol. **131**, pp. 1–216.
-  **Conference Proceedings**

- A. B. Kuijlaars, K.-R. McLaughlin, W. Van Assche, and M. Vanlessen, "The riemann–hilbert approach to strong asymptotics for orthogonal polynomials on  $[-1, 1]$ ," *Advances in mathematics*, vol. **188**, no. # 2, pp. 337–398, 2004.
- J. Baik, T. Kriecherbauer, K.-R. McLaughlin, and P. D. Miller, "Uniform asymptotics for polynomials orthogonal with respect to a general class of discrete weights and universality results for associated ensembles: Announcement of results," *International Mathematics Research Notices*, vol. **2003**, no. # 15, pp. 821–858, 2003.
- N. M. Ercolani and K.-R. McLaughlin, "Asymptotics of the partition function for random matrices via riemann-hilbert techniques and applications to graphical enumeration," *International Mathematics Research Notices*, vol. **2003**, no. # 14, pp. 755–820, 2003.
- D. Cai, D. W. McLaughlin, and K. T. McLaughlin, "The nonlinear schrödinger equation as both a pde and a dynamical system," *Handbook of dynamical systems*, vol. **2**, pp. 599–675, 2002.
- J. Baik, P. Deift, K. McLaughlin, P. Miller, and X. Zhou, "Optimal tail estimates for directed last passage site percolation with geometric random variables," 2001. arXiv: math-ph/0112162.
- P. Deift, T. Kriecherbauer, K.-R. McLaughlin, S. Venakides, and X. Zhou, "A riemann–hilbert approach to asymptotic questions for orthogonal polynomials," *Journal of computational and applied mathematics*, vol. **133**, no. # 1-2, pp. 47–63, 2001.
- N. M. Ercolani and K. T.-R. McLaughlin, "Asymptotics and integrable structures for biorthogonal polynomials associated to a random two-matrix model," *Physica D: Nonlinear Phenomena*, vol. **152**, pp. 232–268, 2001.
- A. Kuijlaars and K.-R. McLaughlin, "Long time behavior of the continuum limit of the toda lattice, and the generation of infinitely many gaps from  $C^\infty$  initial data," *Communications in Mathematical Physics*, vol. **221**, no. # 2, pp. 305–333, 2001.
- A. B. Kuijlaars and K. T.-R. McLaughlin, "Riemann-hilbert analysis for laguerre polynomials with large negative parameter," *Computational Methods and Function Theory*, vol. **1**, no. # 1, pp. 205–233, 2001.
- M. Forest, K. McLaughlin, and O. C. Wright III, "Some riemann-green functions for the geometric optics approximation of the defocusing nonlinear schrodinger equation," *16th IMACS World Congress Proceedings*, 2000.
- A. Kuijlaars and K. T.-R. McLaughlin, "Generic behavior of the density of states in random matrix theory and equilibrium problems in the presence of real analytic external fields," *Communications on Pure and Applied Mathematics: A Journal Issued by the Courant Institute of Mathematical Sciences*, vol. **53**, no. # 6, pp. 736–785, 2000.
- P. Deift, T. Kriecherbauer, K. T.-R. McLaughlin, S. Venakides, and X. Zhou, "Strong asymptotics of orthogonal polynomials with respect to exponential weights," *Communications on Pure and Applied Mathematics: A Journal Issued by the Courant Institute of Mathematical Sciences*, vol. **52**, no. # 12, pp. 1491–1552, 1999.
- P. Deift, T. Kriecherbauer, K. T.-R. McLaughlin, S. Venakides, and X. Zhou, "Uniform asymptotics for polynomials orthogonal with respect to varying exponential weights and applications to universality questions in random matrix theory," *Communications on Pure and Applied Mathematics: A Journal Issued by the Courant Institute of Mathematical Sciences*, vol. **52**, no. # 11, pp. 1335–1425, 1999.
- M. G. Forest, J. N. Kutz, and K. R.-T. McLaughlin, "Nonsoliton pulse evolution in normally dispersive fibers," *JOSA B*, vol. **16**, no. # 11, pp. 1856–1862, 1999.
- T. Kriecherbauer and K. T. McLaughlin, "Strong asymptotics of polynomials orthogonal with respect to freud weights," *International Mathematics Research Notices*, vol. **1999**, no. # 6, pp. 299–333, 1999.
- T. Kriecherbauer, A. Kuijlaars, and K. McLaughlin, "Locating the zeros of partial sums of  $e^z$  with riemann–hilbert methods," in *Integrable Systems and Random Matrices: In Honor of Percy Deift: Conference on Integrable Systems, Random Matrices, and Applications in Honor of Percy Deift's 60th Birthday, May 22-26, 2006, Courant Institute of Mathematical Sciences, New York University, New York, American Mathematical Soc.*, vol. **458**, 2008, p. 183.
- K. D.-R. McLaughlin, "Applications of a complete expansion for the partition function of random matrix theory," in *XIVth International Congress on Mathematical Physics, World Sci. Publ., Hackensack, NJ*, 2005, pp. 364–371.
- K. McLaughlin, "Introduction to asymptotics for orthogonal polynomials via riemann-hilbert methods," in *Laredo lectures on orthogonal polynomials and special functions*, ser. Adv. Theory Spec. Funct. Orthogonal Polynomials, Nova Sci. Publ., Hauppauge, NY, 2004, pp. 85–109.
- P. Deift, T. Kriecherbauer, and K. McLaughlin, "New results for the asymptotics of orthogonal polynomials," in *Recent Advances in Partial Differential Equations, Venice 1996: Proceedings of a Conference in Honor of the 70th Birthdays of Peter D. Lax and Louis Nirenberg: June 10-14, 1996, Venice, Italy, American Mathematical Soc.*, vol. **54**, 1998, p. 87.
- P. Deift, T. Kriecherbauer, K. McLaughlin, S. Venakides, and X. Zhou, "Uniform asymptotics for orthogonal polynomials," in *Proceedings of the International Congress of Mathematicians*, vol. **3**, 1998, pp. 491–501.

## Journal Articles, Continued

- O. C. Wright, M. G. Forest, and K.-R. McLaughlin, *On the exact solution of the geometric optics approximation of the defocusing nonlinear schrödinger equation*, 1999.
- P. Deift, T. Kriecherbauer, and K.-R. McLaughlin, *New results on the equilibrium measure for logarithmic potentials in the presence of an external field*, 1998.
- M. G. Forest and K.-R. McLaughlin, *Onset of oscillations in nonsoliton pulses in nonlinear dispersive fibers*, 1998.
- P. Deift, T. Kriecherbauer, K. T. McLaughlin, and S. Venakides, *Asymptotics for polynomials orthogonal with respect to varying exponential weights*, 1997.
- Y. Kodama and K. T. McLaughlin, *Explicit integration of the full symmetric toda hierarchy and the sorting property*, 1996.