

## Curriculum Vita

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PUBLICATIONS

**Chebyshev and Fourier Spectral Methods,**

Springer-Verlag, 792 pp. (1989),  
2d edition, Dover (2001) [December]

**Weakly Nonlocal Solitary Waves and Beyond-All-Orders  
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18. "Low Wavenumber Instability on the Equatorial Beta-Plane," with Z. D. Christidis, *Geophys. Res. Lett.*, 9, 769-772 (1982).
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154. "Computing Real Roots of a Polynomial in Chebyshev Series Form Through Subdivision with Linear Testing and Cubic Solves", *Appl. Math. Comput.*, 174, 1642-1648 (2006).
155. "Rootfinding Through Global Newton Iteration and Chebyshev Polynomials for the Gain of a Balanced Oscillator, with Robert Visser", *Appl. Math. Comput.*, 182, 166-174 (2006)
156. "A Proof that the Discrete Singular Convolution (DSC)/Lagrange-Distributed Approximating Function (LDAF) Method is Inferior to High Order Finite Differences", *J. Comput. Phys.*, 214, no. 2, 538-549 (2006).
157. "Planetary-scale solitary waves", in Solitary Waves in Fluids, edited by R. H. J. Grimshaw, WIT Press, Ashurst, Southhampton, United Kingdom 125-158 (2007).
158. "Chebyshev Expansion on Intervals with Branch Points with Application to the Root of Kepler's Equation: a Chebyshev-Hermite-Pade Method", submitted to *J. Sci. Comput.*, (2005).
159. "Why Newton's Method is Hard for Travelling Waves: Small Denominators, KAM Theory, Arnold's Linear Fourier Problem, Non-Uniqueness, Constraints and Erratic Failure", *Math. Comput. Simul.*, 74, no. 2-3, 72-81 (2007). doi:10.1016/j.matacom.2006.10.001
160. "Numerical Experiments on the Accuracy of the Chebyshev-Frobenius Companion Matrix Method for Finding the Zeros of a Truncated Series of Chebyshev Polynomials", with Daniel H. Gally, *J. Comput. Appl Math.*, in proof, (2006).
161. "A Lacunary Fourier Pseudospectral Method for Long Wave/Short Wave Interaction and Its Relationship to the Coupled NLS/KdV and Long Wave/Short Wave Resonance Reduced Models", with Lindsay M. Sheridan, to be submitted (2006).
162. "Computing the Zeros, Maxima and Inflection Points of Chebyshev, Legendre and Fourier Series: Solving Transcendental Equations by Spectral Interpolation and Polynomial Rootfinding", *J. Engin. Math.*, 56 (3), 203--219 (2006).
163. "Defeating Gibbs Phenomenon in Fourier and Chebyshev Spectral Methods for Solving Differential Equations", in *Gibbs Phenomenon*, ed. by Abdul Jerri, Sampling Publishing, Potsdam, New York, in press (2006).

164. " Divergence (Runge Phenomenon) for Least-Squares Polynomial Approximation on an Equispaced Grid" with Fei Xu, Submitted to J. Comput. Appl. Math., (2006).
165. "Exponentially Accurate Runge-Free Approximation Using Samples on an Evenly-Spaced Grid: Filtered Fourier Series Combined with Contracting-Interval Polynomial Interpolation ", Appl. Math. Lett., in proof (2006).
166. " A Test, Based on Conversion to the Bernstein Polynomial Basis, for an Interval to be Free of Zeros Applicable to Polynomials in Chebyshev Form and to Transcendental Functions Approximated by Chebyshev Series", Appl. Numer. Math., in proof (2006).
167. "Uniform asymptotics for the linear Kelvin Wave in spherical geometry," with Cheng Zhou, J. Atmos. Sci., in press (2007).
168. "Themes Illustrated by the Blasius Function: Numerical Computations Before Computers, the Value of Narrow Tricks, and Interesting Undergraduate Projects and Open Research Problems", submitted to SIAM Rev. (2006).
169. "Finding the Roots of a Transcendental Equation: How Chebyshev Polynomials, Algebraic Geometry and Matrix Theory Have Solved a Quest Begun in Babylon", submitted to Mathematical Intelligencer (2006).
170. " Barotropic Rossby waves: Generation, propagation, ray tracing, and dissipation", with Chungdu Lu, submitted to J. Atmos. Sci. (2006).
171. "Exploiting Parity in Converting to and from Bernstein Polynomials and Orthogonal Polynomials", submitted Computers & Graphics (2007).
172. "A Rescaled Legendre Lagrangian Interpolant Weak Formulation of the Navier-Stokes and Energy Equations with Application to Rayleigh Bernard Convection", with Laila Guessous, submitted to J. Comput. Phys. (2006).

REPORTS & CONFERENCE PAPERS

1. "Planetary Waves and the Semiannual Wind Oscillation in the Tropical Upper Stratosphere," Ph. D. Thesis, Harvard (1976)
2. "Solitary waves on the equatorial beta-plane," in Proceedings of the FINE Workshop, La Jolla, 1977, ed. by D. Moore, Nova University Press, Ft. Lauderdale. (1978)
3. "A review of equatorial waves in the atmosphere," in Proceedings of the FINE Workshop, La Jolla, 1977, ed. by D. Moore, Nova University Press, Ft. Lauderdale. (1978)
4. "Equatorial modons", Trop. Ocean-Atmos. Newsletter, No. 20, (Sept. '83), 7-8. (1983)
5. "REDUCE Examples", with P. Flatau and W. Cotton, CSU Technical Report, 200 pages (1986).
6. "Generalized solitary and cnoidal waves". Proceedings of the NCAR Colloquium on Low Frequency Variability. NCAR, Boulder, (1988)
7. "The energy spectrum of fronts". Proceedings of the Eighth Conference on Atmospheric & Oceanic Waves & Stability American Meteorological Society, Boston, pp. 90-93 (1991).
8. "Weakly nonlocal solitary waves and the slow manifold". Proceedings of the Ninth Conference on Atmospheric & Oceanic Waves & Stability, American Meteorological Society, Boston, (1993).



REVIEWS

1. "A Review of Nonlinear & Turbulent Processes in Physics, Vols. 1, 2 & 3, R. Z. Sagdeev, Ed.", Bull. Amer. Meteor. Soc., 66,1315 (1985).
2. "A Review of Proofwriter", SIAM Newsletter 18, #5, pg. 4 (1985).
3. "A Review of Nonlinear Dynamics and Chaos, J. M. T. Thompson and H. Stewart", Bull. Amer. Meteor. Soc., 68, 519-520 (1987).
4. "A Review of Handbook of Mathematics, Bronshtein & Semendyayev, Bull. Amer. Meteor. Soc., 69, (1988).
5. "A Review of Spectral Methods for Fluid Mechanics by Canuto et al., SIAM Review 30, 666-668 (1988).
6. "A Review of Multiprocessing in Meteorological Models, ed. by G.-R. Hoffman and D. R. Snelling", EOS, 69, 861 (1988).
7. "A Review of A Handbook of Matrix Computations ed.,by T. F. Coleman and C. Van Loan", Bull. Amer. Meteor. Soc.,70, 1290-1291 (1989).
8. "A Review of An Introduction to Spectral Methods by B. Mercier", SIAM Review, 32, 489 (1990).
9. "A Review of Dynamics for Atmospheric Physics by R. S. Lindzen", Bull. Amer. Meteor. Soc, 72, 401-402 (1991).
10. "A Review of A Practical Guide to Pseudospectral Methods" by B. Fornberg, Bull. Amer. Meteor. Soc., 77, No. 9, 2119-2120 (1996).
11. "A Review of A Practical Guide to Pseudospectral Methods" by B. Fornberg, Inverse Problems, 12, No. 5, 812-813 (1996).
12. "A Review of Modulated Waves: Theory and Practice by Lev A. Ostrovsky and Alexander I Potapov, SIAM Rev., 42, no. 2, 342-343 (2000).
13. "A Review of High-Order Methods for Incompressible Fluid Flow by M. O. Deville, P. F. Fischer and E. H. Mund, SIAM Rev., 46, no. 1, 151-157 (2004).

Non-Technical Publications of J. P. Boyd

1. "Porestian's Wake," *Harvard Advocate*, 95, Fall-Winter, 15-35 (1973).
2. "Hero," *Isaac Asimov's Science Fiction Magazine*, 1, No. 2 (Summer), 36-45 (1977).
3. "The First Star," *Isaac Asimov's Science Fiction Magazine*, 2, No. 6 (Nov.-Dec.), 50-64 (1978).
4. "The Sparrow and the Wizard," *Other Worlds*, 2, 99-108 (1980).
5. "The Moonbow," *Isaac Asimov's Science Fiction Magazine*, 5, No. 5(May 11), 18-37 (1981).
6. "Magic, the Sea, and Our Conference in Avernus," *Isaac Asimov's Science Fiction Magazine*, 5, No. 8 (Aug. 8), 92-102 (1981).
7. "The Werebear and the Rainbow," *Amazing*, 59, No. 1 (May), 38-51 (1985).
8. "Earthflight," in *Habitats*, ed. by Susan Shwarz, DAW Books, New York, 201-218 (1984).
9. "The Matthew Principle", *Alfred Hitchcock's Mystery Magazine*, in press (1985).
10. "Victory", in *There Will Be War*, 5, ed. by J. E. Pournelle and J. F. Carr, TOR Books, New York, 142-153 (1986).
11. "The Anger of Time", *The Magazine of Fantasy & Science Fiction*, 72, No. 2, 96-103 (1987).
12. "The Rust on the Moon", *Alfred Hitchcock's Mystery Magazine*, 32, No. 10, 43-48 (1987).
13. "The Last Cruise of the Zeppelin Tempest", *There Will Be War*, 9, ed. J. E. Pournelle and J. F. Carr, TOR Books, 74-95 (1990).
14. "Oak Leaves, Swords, and Diamonds", *There Will Be War*, 13, ed. by J. E. Pournelle and J. F. Carr, TOR Books, in press (1995).
15. "The Combatants", *There Will Be War*, 14, ed. by J. E. Pournelle and J. F. Carr, TOR Books, (1996).
16. "The Magician", *Asimov's*, 15, No. 5 (May) 94-107 (1991)  
Reprinted in *There Will Be War*, 12, ed. by J. E. Pournelle and J. F. Carr, TOR Books, (1997).

Conference Presentations

Invited lecturer, "Equatorial waves in the atmosphere",  
FINE Workshop, Scripps, June, 1977

"Equatorial solitary waves", 2d Conf. on Atmos. & Oceanic Waves  
& Stability, Boston, October, 1978

"The effects of latitudinal shear on equatorial waves", 1st  
Conf. on the Upper Atmosphere, Boston, October, 1978

"The structure of normal modes with critical latitudes", 1st  
Conf. on the Upper Atmosphere, Boston, October, 1978

"The nonlinear equatorial Kelvin wave", 3rd INDEX Conf.,  
Ft. Lauderdale, February, 1979

"Solitary Rossby waves", 4th INDEX Conf., Tallahassee,  
April, 1980

"Equatorial solitary waves", Summer Program in Geophysical  
Fluid Dynamics, Woods Hole, June, 1980

"Nonlinear equatorial waves", 3rd Conf. on Atmos. & Oceanic  
Waves and Stability, January, 1981

"Analytic solutions for linear Rossby waves with critical  
latitudes", 3rd Conf. on Atmos. & Oceanic Waves and Stability,  
January, 1981

"A review of equatorial wave-mean flow interaction", invited  
review, 3rd Conf. on the Upper Atmosphere, January, 1981

"Theta functions, Gaussian series, and the spatially periodic  
solutions of the Korteweg-deVries equation", 13th AMS/SIAM  
Summer School: Geophysical Fluid Dynamics, July, 1981

"Instability on the equatorial beta-plane", 14th Liege  
Colloquium on Hydrodynamics, May, 1982

"Nonlinear equatorial waves", 5th Conf. on Atmos. & Oceanic  
Waves and Stability, New Orleans, March 7, 1985

"Solitary waves in an equatorial stratified ocean", with  
H. G. Marshall, 5th Conf. on Atmos. & Oceanic Waves and  
Stability, New Orleans, March 7, 1985

"Nonlinear equatorial waves", 2d FSU Workshop on Isolated,  
Coherent Structures, Tallahassee, March 26, 1985.

"Equatorial instability in the mesosphere", with  
Z. D. Christidis, 5th Conf. on the Middle Atmosphere,

Boulder, April 26, 1985.

"Orthogonal Rational Functions for Unbounded Intervals", SIAM National Meeting, Boston, July, 1986

"Orthogonal Rational Functions for a Semi-Infinite Atmosphere", 6th Conf. on the Middle Atmosphere, Baltimore, March, 1987.

"Numerical Methods for Quasi-Solitary Waves", Workshop on Ocean Vortices, Tallahassee, March, 1987.

"Generalized Solitary & Cnoidal Waves", Invited Lecture, Colloquium on Low-Frequency Variability in the Atmosphere, NCAR, July, 1987

"Boundary Value Methods for Solitary Waves", with S. E. Haupt 6th Conference on Atmospheric & Oceanic Waves and Stability, Seattle, August, 1987

"Generalized Quasi-Solitary Waves", 6th Conference on Atmospheric & Oceanic Waves & Stability, Seattle, August, 1987

"Finite Difference Acceleration of Pseudospectral Methods", SIAM National Meeting, Denver, October, 1987

"The LaSC Interdisciplinary Degree Program in Scientific Computing", Cornell, July, 1988

"Weakly Non-Local Solitary Waves", Liege Colloquium on Hydrodynamics, Liege, Belgium, May, 1988

"Weakly Non-local Solitary Waves", SIAM National Meeting, Minneapolis, July, 1988

"Nonlinear Waves" [3 lectures], Enrico Fermi Summer School, Varenna, Italy, August, 1988

"Thermal Convection Around a Fusion Apparatus", with S. Wineberg et al., SIAM National Meeting, San Diego, July, 1989

"New Directions in Nonlinear Waves", invited review, IAMAP, Reading, England, August, 1989

"Sum-Accelerated Pseudospectral Methods", SIAM National Meeting, Chicago, July, 1990

"Spectral Element Methods for an Elliptical Journal Bearing", SIAM National Meeting, Chicago, July, 1990 (with Schumack and Schultz)

"Spectral Methods for an Elliptical Journal Bearing", Fluid Section, American Physical Society, Ithaca, New York, November, 1990 (with Schumack and Schultz)

John P. Boyd

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"A Three-Dimensional Spectral Element Model with Focusing Resolution: Application to Deep Water Formation",  
Ocean Society Meeting, Washington DC, March, 1991  
(with Marshall, Evans, and Haidvogel)

"Weakly Nonlocal Solitary Waves", ICIAM 91, Washington DC,  
July, 1991

"Sum Acceleration Methods", CHAMMP Workshop on Numerical  
Methods for Fluids in Spherical Geometry, Boulder,  
October, 11, 1991

"The Energy Spectrum of Fronts", 8th Conference on  
Atmospheric and Oceanic Waves and Stability, AMS,  
Denver, October 15, 1991

"Sum Acceleration Methods & Tikhonov Regularization",  
International Conference on Spectral and High Order Methods (ICOSAHOM '92),  
Monpellier, France, June 25, 1992

"Defeating the Runge Phenomenon by Tikhonov Regularization",  
DOE Scientific Computing Workshop, Albuquerque, Feb. 4, 1993

"New Spectral Algorithms", Third CHAMMP Workshop on Numerical  
Methods for PDEs on the Sphere, Oak Ridge, Tennessee,  
April, 1993

"The Slow Manifold", 9th Conference on Atmospheric & Oceanic  
Waves and Stability", San Antonio, May, 1993

"Time-Marching on the Slow Manifold: The Relationship  
Between the Nonlinear Galerkin Method and Implicit  
Timestepping Algorithms", SIAM National Meeting, San Diego,  
July 25, 1994

"The ErfcLog Filter", CHAMMP Workshop for PDEs on the  
Sphere, Chicago, August 26, 1994.

"Space Adaptive Spectral Filtering", LaSC Conference,  
Ann Arbor, October 13, 1994

"Hyperasymptotic Perturbation Theory", Los Alamos, May 15, 1995

"The erfc-log filter and the asymptotics of the Euler &  
Vandeven sequence accelerations", ICOSAHOM, Houston,  
June, 1995

"Triangular spectral element methods for geophysical  
fluid dynamics applications", ICOSAHOM, Houston,  
June, 1995 (with B. A. Wingate)

"Numerical Solutions to the Elliptical Journal Bearing",  
APS Fluid Sections, August, 1995 (with W. Schultz & H. Han)

"Strong vortices & weakly nonlocal solitary waves in the  
ocean and atmosphere", SIAM National Meeting, October 20, 1996

"Exponential asymptotics and Chebyshev polynomials",  
SIAM National Meeting, October 20, 1996

"Hyperasymptotic perturbation theory and numerical studies  
of nonlocal solitary waves with application to  
near-equatorial ocean vortices", 11th Conference on  
Atmospheric & Oceanic Fluid Dynamics, June 23, 1997

"Propagation of Kelvin wave packet in equatorial ocean",  
with Guan-yu Chen, 11th Conference on  
Atmospheric & Oceanic Fluid Dynamics, June 24, 1997

"Variational data assimilation for atmospheric solitary  
waves", 11th Conference on Atmospheric & Oceanic  
Fluid Dynamics, June 26, 1997

"Compatibility Conditions for Time-Dependent Partial

Differential Equations and the Rate of Convergence of Chebyshev and Fourier Spectral Methods", with N. Flyer, 6th Workshop on PDEs on the Sphere, Gatlinburg, TN, April 29, 1998

"The NLS/KdV Connection", with G.-Y. Chen, IMACS Nonlinear Wave Conference, U. of Georgia, April, 1999.

"Pseudospectral Methods Versus Dealised, High Order Finite Differences", 8th Workshop on PDEs on the Sphere, San Francisco, Dec., 1999.

"Prolate Spectral Elements", 10th Workshop on PDEs on the Sphere, Toronto, August 13, 2002

"Corner Waves", 3rd IMACS Conference on Nonlinear Waves, Athens, Georgia, April 10, 2003

"Nonlinear equatorial waves: Rossby vortices and Kelvin fronts", 14th AMS Dynamics conference, June, 2003

"Corner and Near-Corner Waves: Matched Asymptotics and Pseudospectral Algorithms for Slope-Discontinuous Limits of Cnoidal Waves with Applications to Whitham's Equation Family and Oceanic Equatorial Kelvin Waves" Montreal, June, 2003

"The Cnoidal/Corner Wave/Breaking Scenario for Equatorial Kelvin Waves", AGU Ocean Sciences Meeting, Portland, Jan. 30, 2004

"Chebyshev Solution of the Nearly-Singular One-dimensional Helmholtz Equation and Related Singular Perturbation Equations: Multiple Scale Series and Exact Particular Integral for Polynomial Forcing", ICOSAHOM 2004, Brown University, Providence, July, (2004).

"Prolate Spheroidal Wavefunctions as an Alternative to Chebyshev and Legendre Polynomials", ICOSAHOM 2004, Brown University, Providence, July, (2004).

"Corner and Near-Corner Waves: Matched Asymptotics and Mapped Fourier Algorithms Applied to the Corner Wave Bifurcation", SIAM Nonlinear Waves Conference, Orlando, October (2004).

"Why Newton's Method is Hard for Travelling Waves: Small Denominators, KAM Theory, Arnold's Linear Fourier Problem, Non-Uniqueness, Constraints and Erratic Failure, IMACS Waves '05, Athens, Georgia (2005).

"New Developments in Spectral Methods: Defeating Gibbs' Phenomenon and Spectrally-Accurate Nesting", PDEs on the Sphere, Monterey, June (2006).

"Multiscale Issues in Geophysical Fluid Dynamics", Army Research Office Workshop on Computational Multiscale Methodologies, June (2006).

"Computing the Zeros of Truncated Fourier Series and Chebyshev Polynomial Series: Roots of Polynomials in Spectral Form", SIAM National Meeting, Boston, July (2006).

John P. Boyd

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"Gibbs Phenomenon and the Runge Phenomenon: New Strategies to Defeat Old Adversaries", SIAM National Meeting, Boston, July (2006).



Seminars

"Equatorial solitary waves", Scripps, June, 1977

"The effects of latitudinal shear on equatorial waves", Nova University, April, 1978

"The effects of latitudinal shear on equatorial waves", Florida State University, April, 1978

"Recent progress in equatorial waves", GFDL, Princeton, February, 1979

"Nonlinear equatorial waves", University of Chicago, March, 1979

"Nonlinear equatorial waves", Harvard, February, 1980

"The general circulation of the atmosphere", Raytheon Corp., Waltham, April, 1980

"Equatorial solitary waves", MIT, November, 1980

"Nonlinear equatorial gravity waves", Harvard, December, 1980

"Nonlinear equatorial waves", GFDL, Princeton, May, 1985

"Algebraic manipulation languages in fluid mechanics", AOS Dept., Ann Arbor, March, 1986

"Orthogonal rational functions on unbounded intervals", NOAA GFDL & Applied Mathematics Program, Princeton, June, 1986

"Algebraic manipulation languages in fluid mechanics", Laboratory for Scientific Computation, April, 1987

"Special Chebyshev methods for corner singularities and non-local solitary waves", Ohio Supercomputer Center, February, 1989

"Special Chebyshev methods for corner singularities and non-local solitary waves", Laboratory for Scientific Computation, March, 1989

"New directions in nonlinear waves", Univ. of South Carolina, November, 1989.

"New directions in nonlinear waves", AOSS Dept., February, 1990.

"Weakly nonlocal solitary waves", Dept. of Mech. & Aerospace Engineering, Rutgers, December, 1991

"The energy spectrum of fronts", GFDL/Princeton, March, 1992

"New directions in numerical oceanography", Hawaii, April, 1992

"Weakly nonlocal solitary waves", JIMAR, U. Hawaii, Oct., 1992

"The energy spectrum of fronts", Dept. Meteorology, U. Hawaii, Oct., 1992

"Weakly nonlocal solitary waves", University of New South Wales, Oct., 1992

"Weakly nonlocal solitary waves", Monash University, Nov., 1992

"Equatorial Solitary Waves", U. of Delaware, Dec., 1994

"Nonlocal solitary waves and near-equatorial vortices", U. of Hawaii, June, 1997

"Nonlocal solitary waves and near-equatorial vortices", Peking University, Beijing, June, 1997

"Nonexistence of non-axisymmetric solitary waves and vortex crystals", Key Laboratory for the Atmospheric Boundary Layer, Academia Sinica, Beijing, June, 1997

"Nonlocal solitary waves and near-equatorial vortices", Ocean University of Qingdao, June, 1997

"Nonlocal solitary waves and near-equatorial vortices", Nanjing University, June, 1997

"Nonlocal solitary waves and near-equatorial vortices", Pacific Marine Environmental Laboratory, Seattle, June, 1997

- "Solitary waves by horseback, matched asymptotic expansions, and computer algebra", AOSS Dept., Michigan, October, 1999
- "Periodic extension of non-periodic functions and the optimization of smoothed, C-infinity top-hat function", Computer Science Dept., University of Toronto, Jan. 26, 2001
- "Compatibility Conditions for Time-Dependent Partial Differential Equations and the Rate of Convergence of Chebyshev and Fourier Spectral Methods", Wayne State University, Sept. 17, 2001.
- "Step-Fronts and Spiriform Filaments: Why Computational Meteorology is Hard", AOSS Dept., October 4, 2001
- "Prolate Spectral Elements", Division of Applied Mathematics, Brown University, Oct. 15, 2002
- "Prolate Spectral Elements", Dept. of Mathematics, Michigan State University, Nov. 5, 2002
- "Prolate Spectral Elements", Dept. of Math., U. of Michigan, April 18, 2003
- "Geophysical Fluid Dynamics", AOSS Dept., REU, June, 2005
- "Equatorial Rossby Solitons", Dept. of Atmospheric Science, Peking U., June 23, 2005
- "Equatorial Kelvin and Rossby Waves", Ocean University of China, Qingdao, June 27, 2005
- "Equatorial Kelvin Fronts and Microbreaking", Institute of Atmospheric Physics, Academia Sinica, Beijing, June 29, 2005
- "A History of the Kelvin Wave", AOSS Dept, Univ. of Michigan, November, 2006
- "Defeating the Runge Phenomenon", Applied Math. Dept., Univ. of Colorado, November, 2006.
- "Nonlinear Kelvin Waves", NCAR, November, 2006.
- "Gaussian Radial Basis Functions", Dept. of Mathematics, University of Michigan, Feb. 2, 2007.

Educational Activities

Chairman of Ph. D. Theses:

1. Dr. Shun der Ko (graduated '85; co-chair, J. J. Tribbia)
2. Dr. Sue Ellen Haupt (graduated '87)
3. Dr. Hong Ma (graduated '91)
4. Dr. Mark Schumack (graduated '90; co-chair, W. W. Schultz)
5. Dr. Javad Abdollahi-Alibeik (graduated '94; co-chair,  
N. Katopodes)
6. Dr. Hengchu Han (graduated '95, co-chair, W. W. Schultz)
7. Dr. Beth Wingate (graduated '96)
8. Dr. Wan-li Wu (graduated '96, co-chair, A. K. Smith)
9. Dr. Guan-Yu Chen (graduated '98)
10. Dr. Natasha Flyer (graduated '98)
11. Dr. Laila Guessous (graduated '99, co-chair, V. Arpaci)  
Oakland University
12. Dr. Andrei Natarov (graduated '00) The International Pacific Research  
Center (IPRC) at the University of Hawaii
13. Ms. Lei Wang, Applied and Interdisciplinary Mathematics (candidacy Dec., 2006)
14. Mr. Cheng Zhou, Atmospheric Science, (candidacy exam, May, 2007)  
(total of 12 Ph. D. students graduated plus 2 in progress)

Member of Ph. D. Committees:

1. Dr. Nam Young Lee MEAM (W. Schultz, Chairman)
2. Dr. Wen-Mei Yang MEAM (V. Arpaci, Chairman)

3. Dr. Randy Haupt                    ECEE    (V. Liepa, Chairman)
4. Dr. Stephen Bougher            AOSS    (A. Nagy, Chairman)
5. Dr. James Leo                    AOSS    (S. Jacobs, Chairman)
6. Dr. K.-H. Luc                    EECS    (K. Irani, Chairman)
7. Dr. Amid Ansari                AOSS/MEAM (R. Akhavan, Chairwoman)
8. Dr. Judith Miller                Math    (M. Weinstein, Chair)
9. Dr. Asghar Esmaeeli-Kosej    MEAN    (G. Tryggvason, Chair)
10. Dr. Andrew Cary    Aero            (K. Powell)
11. Dr. Sangmo Kang    MEAM            (R. Akhavan)
12. Dr. Robert Groves            Nuclear E.    (E. Larsen)
13. Dr. Brett Sanders            CEE            (N. Katopodes)
14. Dr. Joseph Schumer    NE&RS    (J. Holloway)
15. Dr. Zheng Xu            AOSS    (S. Jacobs)
17. Dr. Zhijian Wu            AOSS            (G. Meadows, Chair)
18. Dr. Srikanth Ranganathan    AOSS    (D. Ortland/P. Hays, Chairs)
19. Dr. Vivian Choi            Mathematics, Monash University  
(R. Grimshaw, chair)
20. Dr. Anita Tam Layton    Computer Sci., U. of Toronto  
(K. Jackson, C. Christara, chairs)
21. Dr. Christiane Jablonowski, AOSS (J. Penner, Chair) 4/30/2004
22. Dr. Christopher Kent, NAME (W. Choi, Chair)
23. Dr. Jacquelin Koch, AOSS 8/18/2006

24. Mehmet Umut Haliloglu, ME

25. Hee Jun Park, ME

26. Mark Iwen, Mathematics

M. S. Degrees

1. Zaphiris Christidis ('83)

2. Xiaoming Zhang ('88)

3. Hao Xu ('04)

UROP Students

1. Kristina Neal (Fall '03 & Winter '04)  
ladymerc@umich.edu

2. Temitope Akinlua (Fall '03 & Winter '04)  
ednut@umich.edu

3. Miesha Williamson (Fall '03)  
mjwillin@umich.edu

4. Ninad Ramachandra Naik (Fall '03 & Winter '04)  
ninadrn@umich.edu

5. Ibrahim Ashamey (Fall '04)

6. Daniel Gally (Fall-Winter '04-'05)

7. Geoff Hancock (Fall-Winter '04-'05)

8. Arvind Srivasta (Fall '05)

9. Aaron Miller (Fall '05)

10. Amanda Mims (Fall-Winter '05-'06)

11. Fei Xu (Fall-Winter '05-'06)
12. Liang Tao (Winter '06)
13. Jun Rong Ong (Fall-Winter '06-'07)
14. Sundeep Parhar (Fall-winter '06-'07)
15. Amol Mody (Fall-Winter '06-'07)

Marian Sarah Parker Scholars

Dana Badeen (Fall '04 and Winter '05)

REU Students

1. Lindsay M. Sheridan (Summer '05)

External Funding

OCE7909191

OCE8108530

OCE8305648

OCE8509923

OCE8812300

DMS8716766

KC070101 (DOE '91-'93) aka DOE-FG02-91ER25109 [UM #28518]

"Sum-accelerated spectral methods", 1991-1994, \$158,000

ECS-9012263 [UM #28973]

OCE9119459: "Vortices and Turbulence in the Equatorial Ocean",

1992-1996, \$210,000 [UM #30419]

AH-0697 (DOE) "Spectral element methods for ocean modelling",

[UM #030823] \$96,386 [one year, '93-'94 for B. Lowrie]

NGT-51409 (NASA) "Variational Assimilation for Atmospheric Solitary Waves", 1995-1998 (3 years at \$22,000/year) for N. Flyer [Account #033415]

OCE952187 (NSF) [Corrected number: OCE9521133] , **#034389**

"Nonlinear Waves and Numerical Algorithms".

This award with this amendment totals \$388,400, 1996-2001.

OCE9986368 (NSF) "Nonlinear Waves in the Ocean and Atmosphere and Numerical Algorithms", Dates: 2000-2005

Amount: \$600,000

Current Grant:

OCE 0451951 (NSF) "Solitons and Wavepackets in the Ocean and Atmosphere and High-Order Numerical Algorithms"

\$748,555, 4/1/05-3/31/10

Project grant no.: F012610 Leg. Acct./Short Cd.: 050084

Class: 22000, on-campus research Dept. ID: AOSS (224000)

Pending Proposals:

"Developing an Atmospheric Climate Model with Self-Adapting Grid and Physics", co-PI (Joyce Penner, lead PI), DOE, submitted Jan.,2007  
0.5 months for Boyd, total request \$1,052,213 for 4 years.