Curriculum Vitae

Helge Kristian Jenssen

February 1, 2016

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Education

Ph.D. Mathematics — 1998
Norwegian University of Science and Technology (NTNU), Trondheim, Norway

M.Sc. Mathematics — 1994
University of Oslo, Oslo, Norway

Employment/Experience

Professor — July 2012-present
Department of Mathematics, Penn State University
University Park, Pennsylvania

Associate Professor — July 2007-June 2012
Department of Mathematics, Penn State University
University Park, Pennsylvania

Assistant Professor — Aug 2005-June 2007
Department of Mathematics, Penn State University
University Park, Pennsylvania

Assistant Professor — Aug 2003-July 2005
Department of Mathematics, North Carolina State University
Raleigh, North Carolina

Zorn Visiting Assistant Professor — Sept 2000-Aug 2003
Department of Mathematics, Indiana University
Bloomington, Indiana

EU Postdoc, Scuola Internazionale di Studi Avanzati (SISSA) — Sept 1998-Aug 2000
Trieste, Italy

Military service, Norwegian Defense Research Establishment — June 1994-June 1995
Department of Underwater Acoustics, Horten, Norway

Editorial

Associate editor for Journal of Mathematical Analysis and Applications (Elsevier). — November 2015 -

Short Term and Visiting Positions

Department of Mathematics, University of California, Davis — January-April 2012

CAS fellow, Centre for Advanced Study (CAS), Oslo, Norway — Spring 2009

Centre of Mathematics for Applications (CAM), Oslo, Norway — June-July 2005

Mittag-Leffler Institute, Stockholm, Sweden — Sept-Oct 2005

SISSA, Trieste, Italy (1-3 weeks stays) — Summers 1998-2003

Mittag-Leffler Institute, Stockholm, Sweden — Sept-Dec 1997

Awards and Honors

NSF CAREER Award — 2005 - 2010

ESSO Award for Best Ph.D. in Fundamental Research — 1998
Norwegian University of Science and Technology, Trondheim, Norway

Nordic Academy for Advanced Study Grant — Fall 1997

Research Support

Serving as external sponsor for Charis Tsikkou — 2014-2016
(Assistant Professor, Department of Mathematics, West Virginia University, Morgantown, WV) through WVU ADVANCE Centers Sponsorship Program. The program is funded by the National Science Foundation's ADVANCE IT Program (Award HRD-100797): "WVU faculty (Associates) will be paired with mentors (Sponsors) to work on a clearly identified project with specific outcomes. Funds are available for ten awards for October 1, 2014-September 30, 2015 (Associate $10,000; Sponsor $ 5,000)." [1]

NSF Grant, "Fundamental challenges in nonlinear hyperbolic PDE"
(NSF DMS-1311353, $360 K) — 2013–2016

[1] From http://advance.wvu.edu, accessed Sept. 23, 2014.

NSF Grant, "Entropies, geometric structures, and interactions for systems of conservation laws" (NSF DMS-1009002, $140 K + post-doc supplement $104 K, 2011-2013)	2010–2013
NSF CAREER Grant, "Large and Multi-Dimensional Solutions of Conservation Laws" (NSF DMS-0539549, $400 K)	2005–2010
NSF Grant, "Large solutions to systems of Nonlinear Equations" (NSF DMS-020663, $65 K, with supplements $16.5 K)	2002–2005

Ph.D. Student and Postdoc Mentoring

External adviser to PhD student Mike Benfield North Carolina State University (joint with Prof. Irina Kogan)	2012-present
Geng Chen, Postdoctoral Associate, Penn State University Currently postdoc at Georgia Tech	2010-2013
Nick Costanzino, Postdoc, Penn State University Currently at Scotiabank	2006-2009
Erik Endres, Ph.D. student, Penn State University Currently at US Department of Defense	2004-2008

PUBLICATIONS

Submitted

1. H. K. Jenssen, C. Tsikkou, Radial solutions to the Cauchy problem for the 3-d wave equation as limits of exterior solutions; submitted to Journal of Hyperbolic Differential Equations, 24 pp.

Articles Published in Refereed Journals

1. G. Chen, H. K. Jenssen, No TVD fields for 1-D isentropic flow, Comm. Partial Differential Equations, **38** (2013), 629–657.
2. H. K. Jenssen, I. Kogan, Extensions for Systems of Conservation Laws, Comm. Partial Differential Equations, **37** (2012), 1096–1140.
3. G. Chen, E. Endres, H. K. Jenssen, Pairwise wave interactions in ideal polytropic gases. Arch. Ration. Mech. Anal. **204** (2012), 787836.
4. H. K. Jenssen, T. K. Karper, One-Dimensional compressible flow with temperature dependent transport coefficients, *SIAM Journal of Mathematical Analysis* **42** (2010) 904–930.

5. E. Endres, H. K. Jenssen, M. Williams, Singularly perturbed ODEs and profiles for stationary symmetric Euler and Navier-Stokes shocks, Discrete Contin. Dynam. Systems **27**, (2010), 133–169.

6. H. K. Jenssen, I. Kogan, Systems of hyperbolic conservation laws with prescribed eigencurves, *Journal of Hyperbolic Differential Equations*, **7** (2010), 211-254.

7. E. Endres, H. K. Jenssen, Compressible 1D Euler equations with large data: a case study, *Journal of Hyperbolic Differential Equations*, **6**, (2009), 389 – 406.

8. E. Endres, H. K. Jenssen, M. Williams, Symmetric Euler and NavierStokes shocks in stationary barotropic flow on a bounded domain, *Journal of Differential Equations*, **245**, (2008), 3025 – 3067.

9. K. DeVault, P. Gremaud, H. K. Jenssen, Numerical investigation of cavitation in multi-dimensional compressible flows, *SIAM Journal of Applied Mathematics*, **67** (2007), 1675–1692.

10. N. Costanzino, H. K. Jenssen, G. Lyng, M. Williams, Existence and stability of curved multidimensional detonation fronts, *Indiana University Mathematics Journal*, **56** (2007), 1405 – 1461.

11. A. Bressan, H. K. Jenssen, P. Baiti, An Instability for the Godunov Scheme, *Communications on Pure and Applied Mathematics*, **59** (2006), 1604–1638.

12. H. K. Jenssen, G. Lyng, M. Williams, Equivalence of Low Frequency Stability Conditions for Multidimensional Detonations in Three Models of Combustion, *Indiana University Mathematics Journal*, **54** (2005), 1–64.

13. P. Baiti, A. Bressan, H. K. Jenssen, Instability of Travelling Wave Profiles for the Lax-Friedrichs Scheme, *Discrete and Continuous Dynamical Systems*, **13** (2005), 877–899.

14. H. K. Jenssen, R. Young, Gradient Driven and Singular Flux Blowup of Smooth Solutions to Hyperbolic Conservation Laws, *Journal of Hyperbolic Differential Equations*, **1** (2004), 627–641.

15. D. Hoff, H. K. Jenssen, Symmetric Nonbarotropic Flows with Large Data and Forces, *Archive for Rational Mechanics and Analysis*, **173** (2004), 297–343.

16. P. Baiti, H. K. Jenssen, Blowup in L^∞ for a Class of Genuinely Nonlinear Hyperbolic Systems of Conservation Laws, *Discrete and Continuous Dynamical Systems*, **7** (2001), 837–853.

17. H. K. Jenssen, C. Sinestrari, On the spreading of characteristics for nonconvex conservation laws, *Proceedings of the Royal Society of Edinburgh Section A*, **131** (2001), 909–925.

18. A. Bressan, H. K. Jenssen, On the Convergence of Godunov Scheme for $n \times n$ Systems of Hyperbolic Conservation Laws, *Chinese Annals of Mathematics Series B*, **21** (2000), 1–16.

19. H. K. Jenssen, Blowup for Systems of Conservation Laws, *SIAM Journal of Mathematical Analysis* **31** (2000) 894–908.

20. H. K. Jenssen, C. Sinestrari, Blowup Asymptotics for Scalar Conservation Laws with a Source, *Communications in Partial Differential Equations*, **24** (1999), 2237–2261.

21. P. Baiti, H. K. Jenssen, On the Front-Tracking Algorithm, *Journal of Mathematical Analysis and Applications*, **217** (1998), 395-404.

22. P. Baiti, H. K. Jenssen, Well-posedness for a Class of 2×2 Conservation Laws with L^∞ Data, *Journal of Differential Equations*, **140** (1997), 161–185.

Articles Published in Refereed Proceedings; Appendices; Reports; Reviews

1. M. Benfield, H. K. Jenssen, I. Kogan, 1-D conservative systems: A geometric approach, *Proceedings of the 14th International Conference on Hyperbolic Problems, held June 25-29, 2012 Università di Padova, Padova, Italy*, AIMS Series on Applied Mathematics, **8** Part 2, (2014), 749 – 757.

2. H. K. Jenssen, Review of "Quasilinear hyperbolic systems, compressible flows, and waves," by Vishnu D. Sharma, Bull. Amer. Math. Soc. 49 (2012), 591-596.

3. H. K. Jenssen, On radially symmetric solutions to conservation laws, in The IMA Volumes in Mathematics and its Applications, 153. Springer-Verlag, New York, 2011.

4. N. Costanzino, H. K. Jenssen, Symmetric solutions to multi-dimensional conservation laws, *Nonlinear Partial Differential Equations and Hyperbolic Wave Phenomena*, Contemporary Mathematics, **526**, Amer. Math. Soc., 2010, pp. 91 – 124.

5. H. K. Jenssen, I. Kogan, Construction of conservative systems, *Proceedings of the 12th International Conference on Hyperbolic Problems, held June 9-13, 2008 University of Maryland, College Park*, Proceedings of Symposia in Applied Mathematics, **67** Part 2, (2009), 673 – 682.

6. E. Endres, H. K. Jenssen, On global large solutions to the 1-D gas dynamics, *Hyperbolic Problems: Theory, Numerics, Applications*, 593 – 600, Springer, Berlin, 2008.

7. A. Bressan, P. Baiti, H. K. Jenssen, Instability of finite difference schemes for hyperbolic conservation laws. *Mathematical aspects of nonlinear dispersive equations*, 43–53, Ann. of MatH. Stud., **163**, Princeton Univ. Press, Princeton, NJ, 2007.

8. G. Lyng, K. Zumbrun, H. K. Jenssen, Stability of detonation waves. EQUADIFF 2003, 517–519, World Sci. Publ., Hackensack, New Jersey, 2005.

9. H. K. Jenssen, G. Lyng, M. Williams, Low frequency stability of planar multi-D detonations, in Oberwolfach Reports, Volume 1, Issue 2, 2004, report No. 18/2004, 927–928.

10. H. K. Jenssen, G. Lyng, The Lopatinski determinant for multi-dimensional Euler equations, 15 pages (pp. 507–524), appendix to K. Zumbrun, Stability of Large-Amplitude Shock Waves of Compressible Navier-Stokes Equations, 311–533, *Handbook of Fluid Mechanics, Vol. III*, North-Holland, Amsterdam, 2004.

11. D. Hoff, H. K. Jenssen, Multidimensional Compressible Flows with Symmetry, *Hyperbolic Problems: Theory, Numerics, Applications*, 493–498, Springer, Berlin, 2003.

12. A. Bressan, H. K. Jenssen, Convergence of Godunov Scheme for Straight Line Systems, *Hyperbolic Problems: Theory, Numerics, Applications, Vol. I*, 187–196, International Series of Numerical Mathematics 140, Birkhäuser, Basel, 2001.

13. H. K. Jenssen, C. Sinestrari, Blowup for Hyperbolic Equations, *Hyperbolic Problems: Theory, Numerics, Applications, Vol. II*, 515–524, International Series of Numerical Mathematics 130, Birkhäuser, Basel, 1999.

Short courses

1. Lecture Series on Conservation Laws — June 22–July 2, 2010
   6 lectures, Rocky Mountain Mathematics Consortium Summer School
   University of Wyoming, Laramie, Wyoming

2. *Reactive Flow and Detonations I–IV* — January–February, 2004
   4 lectures, Department of Mathematics
   North Carolina State University, Raleigh, North Carolina

Invited Seminars and Colloquium Talks

1. *Global solutions of conservative hyperbolic systems* — February 4, 2014
   Applied Analysis Seminar, Department of Mathematics
   West Virginia University, Morgantown, West Virginia

2. *Compressible Euler Flow and TVD Fields* — November 11, 2013
   PDE and Analysis Seminar, Department of Mathematics
   University of Pittsburgh, Pennsylvania

3. *Existence Theory for Non-Linear Hyperbolic Systems* — September 12, 2013
   Fluid Dynamics Research Consortium seminar
   Penn State University, University Park, Pennsylvania

4. *On Variation Bounds for Conservation Laws* — January 17, 2012
   Combined Applied Math & PDEs seminar
   University of California, Davis, California

5. *On Extending Glimm's Theorem for Systems of Conservation Laws* — September 26, 2011
   Lefschetz Center for Dynamical Systems Seminar
   Division of Applied Mathematics, Brown University, Providence

6. *The Cauchy problem for systems of conservation laws* — May 5, 2011
   Colloquium, Drexel University, Philadelphia, Pennsylvania

7. *Eigen-structure and entropies for conservative systems* — January 21, 2011
   PDE Seminar, University of Houston, Houston, Texas

8. *Eigen-structure and entropies for conservative systems* — November 16, 2010
   Applied Analysis Seminar, Department of Mathematics
   University of Pittsburgh, Pittsburgh, Pennsylvania

9. *Hyperbolic systems: geometric structure and entropies* — December 1, 2009
   Colloquium, Department of Mathematics and Statistics
   University of Massachusetts at Amherst, Amherst, Massachusetts

10. *Geometric construction of hyperbolic systems of conservation laws* — July 2, 2009
    Colloquia Patavina, Department of Pure and Applied Mathematics
    University of Padova, Padova, Italy

11. *Multi-dimensional Symmetric Waves for Conservation Laws* — April 30, 2009
    Guest Lecture, Centre for Advanced Study (CAS)
    Norwegian Academy of Science and Letters, Oslo, Norway

12. *Existence of Hyperbolic Systems with Prescribed Geometry* — March 31, 2009
    PDE Seminar, Georgia Institute of Technology, Georgia

13. *Conservative Systems with Given Geometry* — February 6, 2009
    Guest Lecture, Centre for Advanced Study (CAS)
    Norwegian Academy of Science and Letters, Oslo, Norway

14. *Geometric Properties of Hyperbolic Conservation Laws* — July 16, 2008
    Applied Mathematics Seminar, Department of Mathematics
    University of Bari, Bari, Italy

15. *Conservation Laws in One and Several Space Dimensions* — May 23, 2007
    Applied Mathematics Seminar, Department of Mathematics
    University of Bari, Bari, Italy

16. *Conservation Laws in One and Several Space Dimensions*, — April 5, 2007
    Department of Mathematics Colloquium
    University of Wyoming, Laramie, Wyoming

17. *Large Data Solutions of the 1-D Compressible Euler Equations* — March 20, 2006
    Differential Equations Seminar
    University of Michigan, Ann Arbor, Michigan

18. *Systems of Conservation Laws with Prescribed Wave Curves* — September 22, 2005
    Mittag-Leffler Institute, Stockholm, Sweden

19. *Instabilities in Finite Difference Schemes for Conservation Laws* — August 16, 2004
    Seminar, Centre of Mathematics for Application (CMA),
    University of Oslo, Oslo, Norway

20. *Compressible and heat conductive flows with large data and symmetry* — February 13, 2004
    CAM Colloquium, Department of Mathematics
    Penn State University, University Park, Pennsylvania

21. *Navier-Stokes equations for compressible fluids* — February 13, 2004
    Luncheon Seminar, Department of Mathematics
    Penn State University, University Park, Pennsylvania

22. *Compressible and heat conductive flows with large data and symmetry* February 9, 2004
    Applied Math and Analysis Seminar, Department of Mathematics
    Duke University, Durham, North Carolina

23. *Blowup for systems of conservation laws* February 6, 2004
    Seminar, Department of Mathematics
    University of Houston, Houston, Texas

24. *Large solutions to systems of nonlinear equations* February 5, 2003
    Seminar, Department of Mathematics
    Texas A&M University, College Station, Texas

25. *Large solutions to systems of nonlinear equations* February 3, 2003
    Seminar, Department of Mathematics
    North Carolina State University, Raleigh, North Carolina

26. *Systems of Conservation Laws* January 28, 2003
    Seminar, Department of Mathematics and Statistics
    University of Nevada, Reno, Nevada

27. *Hyperbolic Conservation Laws: Existence of Solutions and Qualitative Properties* April 13, 2001
    Seminar, Department of Mathematics
    University of Colorado at Boulder, Boulder, Colorado

28. *Large solutions to systems of conservation laws* February 10, 2001
    Colloquium, Department of Mathematics and Statistics
    University of Massachusetts at Amherst, Amherst, Massachusetts

Invited Conference Talks

1. *Isentropic Flow with Large Data* August 26, 2013
   International Conference on Applied and Computational Science (AMMCS '13)
   Waterloo, Ontario, Canada

2. *TVD Fields & 1-D Isentropic Gas Dynamics* April 26 2012
   Symposium "Hyperbolic Conservation Laws and Applications"
   CUNY Graduate Center, Manhattan, New York

3. *Entropies for hyperbolic systems with prescribed eigenfields* December 9, 2009
   Special session Multi-Dimensional Conservation Laws and Related Applications
   SIAM Conference on Analysis of PDE, Miami, Florida

4. *Symmetric waves for conservation laws* July 27, 2009
   Workshop "Nonlinear Conservation Laws and Applications"
   The Institute for Mathematics and its Applications (IMA)
   University of Minnesota

5. *Geometric Structure of Hyperbolic Conservation Laws* June 8-11, 2009
   Special session "Nonlinear Partial Differential Equations"
   25th Nordic and 1st British-Nordic congress of Mathematicians
   University of Oslo, Norway

6. *Geometry of Hyperbolic Conservation Laws* April 4-5, 2009
   Special session "Geometry of Differential Equations"
   AMS 2009 Spring Southeastern Meeting, Raleigh, North Carolina

7. *Existence and Stability of Shocks with Geometric Structure* July 21-24, 2008
   Special session "Analysis of Nonlinear PDE in Wave Propagation Problems"
   SIAM Conference on Nonlinear Waves and Coherent Structures, Rome, Italy

8. *Modeling of Multi-Step Reactions* July 21-24, 2008
   Special session "Stability of Combustion Waves"
   SIAM Conference on Nonlinear Waves and Coherent Structures, Rome, Italy

9. *Hyperbolic Conservation Laws with Prescribed Eigencurves* May 5-9, 2008
   Workshop "Exterior Differential Systems and the Method of Equivalence"
   Mathematical Sciences Research Institute (MSRI), Berkeley, California

10. *Hyperbolic Conservation Laws with Prescribed Eigencurves* February 22-23, 2008
    The Geometry and Analysis of Dynamical Systems
    Conference to Celebrate the Mathematical Contributions
    of Xiao-Biao Lin & Steve Schecter, Raleigh, North Carolina

11. *Symmetric Stationary Inviscid and Viscous Profiles in Multi-D* December 10-12, 2007
    Minisymposium on " Mathematical Problems in Compressible
    Fluid Flow", SIAM Conference on Analysis of Partial
    Differential Equations, Mesa, Arizona

12. *Stationary Gas Dynamical Shocks with Symmetry* November 3-4, 2007
    Special Session on Nonlinear Partial Differential Equations and Applications
    AMS 2007 Fall Southeastern Meeting, Murfreesboro, Tennessee

13. Declined: Special Session on Wave Propagation October 5-6, 2007
    from Mathematical and Numerical Viewpoints
    AMS 2007 Fall Central Section Meeting, Chicago, Illinois

14. *Systems of Conservation Laws with Geometric Constraints* June 1, 2007
    Invited talk, INdAM International workshop on Nonlinear
    Hyperbolic Problems, Istituto Nazionale di Alta Matematica
    (INdAM), Rome, Italy

15. *Existence and Stability of Spherical Shocks* April 16-19, 2007
    Session on "Non-Self-Adjoint Spectral Problems", 5th IMACS
    International Conference on Nonlinear Evolution Equations
    and Wave Phenomena, Athens, Georgia

16. *A Particular Large Data Solution of the 1-D Euler System* July 10-12, 2006
    Minisymposium on "Nonlinear Conservation Laws
    and Related Models", SIAM Conference on Analysis of
    Partial Differential Equations, Boston, Massachusetts

17. *Numerical Investigation of Cavitation in Multi-D Compressible Flow* June 25-28, 2006
    Special session "The Navier-Stokes equations and related problems"
    AIMS' 6th International Conference on Dynamical Systems,
    Differential Equations and Applications, Poitiers, France

18. *Blowup and Non-blowup in 1-D Systems of Conservation Laws* May 11-13, 2006
    "Fluids and Waves: Recent Trends in Applied Analysis"
    University of Memphis, Memphis, Tennessee

19. *BV Instability of Finite Difference Schemes for Systems of Conservation Laws* April 1-2, 2006
    Special session "Nonlinear Waves"
    AMS Sectional Meeting, Miami, Florida

20. *1-D Systems of Conservation Laws with Prescribed Eigen-structure* June 13–14, 2005
    4th Meeting on Hyperbolic Conservation Laws, Trieste, Italy

21. *BV Instability of the Upwind and Lax-Friedrichs Schemes* December 6-8, 2004
    Special session "Recent Advances in Hyperbolic Conservation Laws"
    SIAM Conference on Analysis of PDE, Houston, Texas

22. *BV instability for Godunov and Lax-Friedrich schemes* November 6-7, 2004
    Special session "Partial Differential Equations and Applications"
    AMS Fall 2004 Eastern Section Meeting, Pittsburgh, Pennsylvania

23. *Instabilities in the Lax-Friedrichs and Godunov schemes for systems of conservation laws* June 16-19, 2004
    Special session "Nonlinear Dynamics for Hyperbolic Systems"
    AIMS 5th International Conference on Dynamical Systems
    and Differential Equations, Pomona, California

24. *Low frequency stability of multi-D viscous and inviscid planar detonations* May 9-12, 2004
    Special session "Mathematical analysis of detonation problems"
    SIAM Conference on Numerical Combustion, Sedona, Arizona

25. *Global existence for the full multi-dimensional compressible Navier-Stokes equations with large, symmetric data* October 12-13, 2002
    Special session "Hyperbolic Differential Equations and Kinetic Theory"
    AMS Fall 2002 Central Section Meeting, Madison, Wisconsin

26. *On the convergence of Godunov Scheme for nonlinear hyperbolic systems* September 11-13, 2000
    Final Meeting, European Training and Mobility of Researchers
    (TMR) Network "Nonlinear Hyperbolic Problems", Paris, France

Contributed Conference Talks

1. *Construction of Conservative Systems* June 9-13, 2008
   12th International Conference on Hyperbolic Problems
   College Park, Maryland

2. *Stability of Planar Combustion Fronts and Spherical Waves* October 30, 2006
   Workshop on Hyperbolic Systems of Conservation Laws and Related Problems
   Banff International Research Station, Banff, Canada

3. *On Global Large Solutions to 1-D Gas Dynamics* July 17-21, 2006
   11th International Conference on Hyperbolic Problems
   Lyon, France

4. *Low frequency stability of planar multi-D detonations* April 4-10, 2004
   Workshop "Hyperbolic Conservation Laws"
   Mathematisches Forschungsinstitut Oberwolfach
   Oberwolfach, Germany

5. *Multidimensional compressible flows with symmetry* March 25-29, 2002
   9th International Conference on Hyperbolic Problems
   Pasadena, California

6. *On the convergence of Godunov scheme for $n \times n$ systems of hyperbolic conservation laws* February 28-March 3, 2000
   8th International Conference on Hyperbolic Problems
   Magdeburg, Germany

7. *Blowup in Hyperbolic systems* May 9-15, 1999
   Workshop "Hyperbolic Aspects of Fluid Dynamics"
   Mathematisches Forschungsinstitut Oberwolfach
   Oberwolfach, Germany

8. *Spreading of characteristics for non-convex scalar equations* June 15-July 18, 1998
   Theoretical and numerical aspects of hyperbolic systems
   Heraklion, Crete, Greece

9. *Blowup for hyperbolic equations* February 9-13, 1998
   7th International Conference on Hyperbolic Problems
   Zürich, Switzerland

Other Talks

1. *Entropies for systems with prescribed eigen-frame I-II* Sept. 27 & Oct. 4, 2010
   PDE Seminar, Department of Mathematics
   Penn State University, University Park, Pennsylvania

2. *Systems of hyperbolic conservation laws with prescribed eigencurves* December 1, 2008
   PDE Seminar, Department of Mathematics
   Penn State University, University Park, Pennsylvania

3. *How to construct systems of conservation laws with prescribed geometry* — October 3, 2008
   Luncheon Seminar, Department of Mathematics
   Penn State University, University Park, Pennsylvania

4. *What is a shock?* — October 16, 2007
   Talk at the Slow Pitch Seminar
   Penn State University, University Park, Pennsylvania

5. *Modeling and Theory of Compressible Flows* — October 1, 2007
   Talk at the Penn State Math Club
   Penn State University, University Park, Pennsylvania

6. *Conservation Laws* — January 30, 2006
   Talk at the Penn State Math Club
   Penn State University, University Park, Pennsylvania

7. *Vacuum Formation in Compressible Flow* — December 2, 2005
   Luncheon Seminar, Department of Mathematics
   Penn State University, University Park, Pennsylvania

8. *Singular Behavior for Solutions to Conservation Laws* — January 14, 2005
   CAM Colloquium, Department of Mathematics
   Penn State University, University Park, Pennsylvania

9. *Singular Behavior for Solutions to Conservation Laws* — January 14, 2005
   Luncheon Seminar, Department of Mathematics
   Penn State University, University Park, Pennsylvania

10. *BV Instability of Numerical Schemes for Conservation Laws* — September 8, 2004
    Seminar, Department of Mathematics
    North Carolina State University, North Carolina

11. *Conservation Laws, Shock Waves, Numerics and Blowup Phenomena* — November 17, 2003
    Mathematics Graduate Student Seminar (presenting field of research)
    Department of Mathematics
    North Carolina State University, Raleigh, North Carolina

12. *Global existence for heat conducting multidimensional flow with large, symmetric data* — October 7, 2002
    Seminar, Department of Mathematics
    Indiana University, Bloomington, Indiana

13. *Blow-up for systems of hyperbolic conservation laws* — September 10, 2001
    Seminar, Department of Mathematics
    Indiana University, Bloomington, Indiana

14. *Hyperbolic Conservation Laws: Existence of Solutions and Qualitative Properties* — April 25, 2001
    Seminar, Department of Mathematics
    Indiana University, Bloomington, Indiana

15. *Convergence of Godunov Scheme for Nonlinear Hyperbolic Systems* September 4, 2000
    Seminar, Department of Mathematics
    Indiana University, Bloomington, Indiana

Teaching

- Penn State University

MATH 403: Analysis I	Fall 2015
MATH 503: Functional Analysis	Spring 2015
MATH 441: Matrix Algebra	Fall 2014
MATH 514: Partial Differential Equations II	Spring 2014
MATH 403: Analysis I	Fall 2013
MATH 514: Partial Differential Equations II	Spring 2013
MATH 441: Matrix Algebra	Fall 2012
Reading course on Hyperbolic Conservation Laws (2 students)	Spring 2011
MATH 412: Fourier Series and Partial Differential Equations	Spring 2011
MATH 417: Qualitative Theory of Differential Equations	Spring 2011
MATH 513: Partial Differential Equations I	Fall 2010
MATH 251-H: Ordinary and Partial Differential Equations (honors)	Spring 2009
MATH 513: Partial Differential Equations I	Fall 2009
MATH 232: Integral Vector Calculus	Fall 2009
MATH 597A Hyperbolic Systems	Fall 2008
MATH 403: Analysis I	Fall 2008
MATH 511: Ordinary Differential Equations I	Spring 2008
MATH 513: Partial Differential Equations I	Fall 2006
MATH 403: Analysis I	Fall 2006
MATH 251: Ordinary and Partial Differential Equations	Spring 2006
MATH 251-H: Ordinary and Partial Differential Equations (honors)	Spring 2006

- North Carolina State University

MA798: Advanced Numerics and Modeling in Science and Engineering	Spring 2005
MA797: Conservation Laws: Theory, Numerics, Applications	Fall 2004
MA242: Analytic Geometry and Calculus III	Fall 2004
MA734: Partial Differential Equations	Spring 2004
MA534: Introduction to Partial Differential Equations	Fall 2003

- Indiana University

M442: Introduction to Partial Differential Equations with Applications II	Spring 2003
M118: Finite mathematics	Fall 2002
M441: Introduction to Partial Differential Equations with Applications I	Fall 2002
M343: Introduction to Ordinary Differential Equations	Spring 2002
M118: Finite mathematics	Fall 2001
M413: Introduction to Analysis	Fall 2001
M118: Finite mathematics	Spring 2001
M211: Calculus I	Fall 2000

New Courses Developed

MATH 597A Hyperbolic Systems — Fall 2008
Department of Mathematics, Penn State

Developed (with Pierre Gremaud, North Carolina State University) — Fall 2004-Spring 2005
two new special topics courses with online lecture notes,
Department of Mathematics, North Carolina State University
- MA797: Conservation Laws: Theory, Numerics, Applications
- MA798: Advanced Numerics and Modeling in Science and Engineering

Service

Peer Reviewer for National Science Foundation — 2015

Member of PhD committee for Yajie Zhang — 2013-
Department of Mathematics, Penn State

Member PhD committee for Alex Iaroshenko — 2013-
Department of Mathematics, Penn State

Member PhD committee for Russell deForest — 2012-
Department of Mathematics, Penn State

Member PhD committee for Tianyou Zhang — 2009-2012
Department of Mathematics, Penn State

Examiner for MASS course — December 17, 2009
Department of Mathematics, Penn State

Member of PhD adjudication committee for Hilde Sande — January 16, 2009
Department of Mathematical Sciences
Norwegian University of Science and Technology
Trondheim, Norway

Examiner, Master Thesis of Jakub Bogumił Warszawski — June 21, 2007
Evaluation of thesis and oral examination
University of Oslo, Norway

Reviewer of proposals for The U.S. Civilian Research — June 2006
& Development Foundation (CRDF)

Reviewer for Mathematical Reviews — June 2005 – 2012

Organized (with Kenneth Karlsen) workshop Recent Advances in — March 3-4 2005
Nonlinear PDEs, University of Oslo, Norway

Organized (with Michael Shearer) three mini-symposia at the — December 6-8, 2004
SIAM Conference on Analysis of PDE, Houston, Texas

Peer Reviewer for National Science Foundation — 2003 & 2005

Refereed papers for:

- *Applied Mathematics Research eXpress*
- *AMS Contemporary Mathematics*
- *Archive for Rational Mechanics and Analysis*
- *Communications in Mathematical Sciences*
- *Communications on Pure and Applied Analysis*
- *Computers and Fluids*
- *Discrete and Continuous Dynamical Systems*
- *Duke Mathematical Journal*
- *European Journal of Mechanics - B/Fluids*
- *Indiana University Mathematics Journal*
- *International Journal of Mathematics and Mathematical Sciences*
- *Journal de l'École polytechnique*
- *Journal of Computational and Applied Mathematics*
- *Journal of Differential Equations*
- *Journal of Hyperbolic Differential Equations*
- *Journal of Mathematical Analysis and Applications*
- *Journal of Mathematical Fluid Mechanics*
- *Mathematical Modelling and Analysis*
- *Methods and Applications of Analysis*
- *Networks and Heterogeneous Media*
- *Nonlinear Analysis Series A: Theory, Methods & Applications*
- *Nonlinearity*
- *SIAM Journal of Mathematical Analysis*
- *SIAM Journal of Applied Mathematics*
- *Transactions of the American Mathematical Society*
- *Zeitschrift für Analysis und ihre Anwendungen (ZAA) (Journal of Analysis and its Applications)*
- *Zeitschrift für Angewandte Mathematik und Physik (ZAMP)*

Departmental Service

Qualifying Examinations Panel Department of Mathematics, Penn State University	May & December 2015
Provided bios for 6 external evaluators for the Promotion and Tenure Committee (case of promotion to Full Professor) Department of Mathematics, Penn State University	August 2015
Graduate Studies Committee Department of Mathematics, Penn State University	2013-2016
Computer Committee Department of Mathematics, Penn State University	July 2007 – present
Personnel Committee Department of Mathematics, Penn State University	July 2008 – June 2011
Ph.D. committee for Brian Haines Department of Mathematics, Penn State University	2008-2011
First-year mentor for incoming students (Kurt Vinage, Dan Lin, and Daniel Droz) Department of Mathematics, Penn State University	2010-2011
Qualifying exam committee (real and functional analysis) Department of Mathematics, Penn State University	Summer 2010
Coordinator of Luncheon Seminar Center for Computational Mathematics and Applications Department of Mathematics, Penn State University	Fall 2009
Coordinator of PDE Seminar Center for Computational Mathematics and Applications Department of Mathematics, Penn State University	Fall 2009
Coordinator of Computational and Applied Mathematics Colloquium Department of Mathematics, Penn State University	Fall 2008-Fall 2009
PDE exam committee Department of Mathematics, Penn State University	Spring 2008
Subcommittee of Undergraduate Studies Committee Search for instructor candidates	February 2008
PDE exam committee Department of Mathematics, Penn State University	Spring and Summer 2007
PDE exam committee Department of Mathematics, Penn State University	Spring and Summer 2006
Undergraduate Studies Committee Department of Mathematics, Penn State University	July 2006 – June 2009

Graduate Teaching Assistant Oversight Committee — January 2006– December 2008
Department of Mathematics, Penn State University

Ph.D. committee for Chris Kuster — Spring 2005
Department of Mathematics, North Carolina State University

Teaching mentor for graduate student Stacy Beun — Fall 2004-Spring 2005
Department of Mathematics, North Carolina State University

Organized (with Dmitry Zenkov) weekly Differential Equation Seminar, Department of Mathematics North Carolina State University — Fall 2004-Spring 2005

Additional information

Nationality: Norwegian

US Permanent Resident

Married, two children

Languages: Norwegian (native), English (fluent), Italian (speak and read), French (read), Swedish and Danish.