YURIKO RENARDY

PERSONAL DETAILS

U. S. citizen.

EDUCATION

B.Sc. (First Class Honours), (Applied Mathematics) The Australian National University 1977
Priscilla Fairfield Bok Prize
Commonwealth Scholarship, Australian Capital Territory Scholarship.

Ph.D. (Mathematics Department) The University of Western Australia 1981

Ph.D. Dissertation, "Water Waves Above a Sill"
Major advisor: Prof. John J. Mahony, University of Western Australia.
Commonwealth Postgraduate Scholarship.

PRIMARY POSITIONS

1. Research Associate, Mathematics Research Center, University of Wisconsin- Madison, August 1980 - July 1981
2. Lecturer, School of Mathematics, University of Minnesota, Minneapolis, September 1981 - June 1982
3. Research Associate, Mathematics Research Center, University of Wisconsin- Madison, August 1982 - May 1983
4. Lecturer, Mathematics Department, University of Wisconsin-Madison, August 1982 - May 1983
5. Project Associate and Program Coordinator, Mathematics Research Center, University of Wisconsin-Madison, July 1983 - August 1986.
6. Assistant Professor, Mathematics Department, Virginia Polytechnic Institute and State University, Sept. 1986 - 1989.
7. Associate Professor, Mathematics Department, Virginia Polytechnic Institute and State University, August 1989 - 1993.
8. Professor, Mathematics Department, Virginia Polytechnic Institute and State University, since August 1993.
9. Class-of-1950 Endowed Professor of Mathematics, Mathematics Department, Virginia Polytechnic Institute and State University, since October 1, 2000.

SECONDARY POSITIONS

1. Visiting Fellow, Centre for Mathematical Analysis, The Australian National University, Australia, June 1984.
2. Visiting Fellow, Centre for Mathematical Analysis, The Australian National University, Australia, July-August 1988.
3. Visiting Professor, Department of Aerospace Engineering, University of Minnesota; Visitor, Institute for Mathematics and Its Applications, Jan - June, 1989.
4. Visiting Professor, Mathematisches Institut A, University of Stuttgart, Germany, summer semester May 1 - August 16, 1991.
5. General Member, Mathematical Sciences Research Institute, University of California-Berkeley, February, 1994.
6. Visiting Professor, Japan Atomic Energy Research Institute, Tokai-mura, Japan, March, 1994.
7. Visitor, Institute for Mathematics and Its Applications, University of Minnesota, Sep. 17-24, 1995.
8. Invited Visitor for the period of concentration on "Complex Fluids", Isaac Newton Institute, University of Cambridge, England, January - June,1996.
9. Visiting Fellow, Clare Hall, University of Cambridge, January - June 1996.
10. Visiting Professor, Japan Atomic Energy Research Institute, Tokai-mura, Japan, August 9-25, 1996.
11. VIV Professor, Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, MN, September - December, 2009.

12. Visitor, Department of Mathematics, University of British Columbia, Vancouver, BC Canada. April - June 2017.

HONORS AND AWARDS

Fellow of the American Physical Society 1997.
Fellow of the Institute of Mathematics and Its Applications (U.K.) 2011.
Stewartson Memorial Lecture, BAMC 2012.
Society for Industrial and Applied Mathematics Fellow 2014.

PLENARY TALKS

Tokubetsu-koen (the opening lecture for fluid dynamics), The 49th Annual Meeting of the Japan Physical Society, Fukuoka, Japan 1994.

Plenary speaker, 31st SIAM Southeastern-Atlantic Section Conference 2007.

Stewartson Memorial lecture, British Applied Mathematics Colloquium, 2012.

Southeastern-Atlantic Regional Conference on Differential Equations (SEARCDE), 2013, University of Tennessee, Knoxville.

PROFESSIONAL ORGANIZATIONS

Membership in

American Institute of Chemical Engineers (Executive Committee, Division of Computing and Systems Technology, Applied Mathematics, 2000-2003)

American Mathematical Society (Centennial Fellowship selection committee, 2002-2004)

American Physical Society Division of Fluid Dynamics (Andreas Acrivos award committee 2005; Gallery of Fluid Motions judge 2005; Frenkiel Award committee 2005-2007; Fellowship Selection Committee 2010-2012); Stanley Corrsin Award Selection Committee ad hoc Chair (2014).

Association for Women in Mathematics (AWM-SIAM Sonia Kovalevsky Lecture Selection Committee 2017-2018)

International Society for the Interaction of Mechanics and Mathematics,

Society for Industrial and Applied Mathematics (DiPrima Prize committee 2005-2006, SIAM Fellows Canvassing Committee January 1, 2018 - 2020.)

Society of Rheology (Technical Program Committee 2001, 2013).

EDITORIAL POSITIONS

1. Journal of Non-Newtonian Fluid Mechanics 2002- present.
2. The IMA Journal of Applied Mathematics 2002- present. Associate Editor 2007-present.
3. on the editorial board of the ISRN (International Scholarly Research Network) Chemical Engineering journal.
4. Editorial board for SIAM Journal of Applied Mathematics (2014-)

ADVISORY BOARD

1. Acta Mechanica 2003-present.
2. VIGRE proposal, Department of Mathematics, University of Delaware 2003.

PUBLICATIONS

1. Yuriko Yamamuro, 1981, Water waves above a sill, Bulletin of the Australian Mathematical Society, Vol. 23, No. 1, 157 - 158.
2. W. G. Pritchard, Y. Renardy and L. R. Scott, 1982, A free boundary problem in Newtonian flow, Transactions of the 28th Conference of Army Mathematicians, 1982 ARO Report 83-1, 125-132;
3. W. G. Pritchard, Y. Renardy and L. R. Scott, 1984, Tests of a non-conforming element for viscous incompressible flows, Proc. Fifth Int. Conf. on Fin. Elts and Flow Problems, ed. G. F. Carey and J. T. Oden, Univ. of Texas at Austin, 91-95.

4. Y. Renardy, 1983, Trapping of water waves above a round sill, J. Fluid Mech. 132, 105-118.
5. Y. Renardy, 1983, Weakly nonlinear interactions and wave-trapping, J. Fluid Mech. 130, 27-39.
6. D. D. Joseph, M. Renardy and Y. Renardy, 1983, Instability due to viscosity stratification in pipe flow, Developments in Mechanics: Proceedings of the 18th Midwestern Mechanics Conference, Vol 12, The University of Iowa, 205-206.
7. D. D. Joseph, M. Renardy and Y. Renardy, 1984, Instability of the flow of two immiscible liquids with different viscosities in a pipe, J. Fluid Mech. 141, 309-317. D. D. Joseph, M. Renardy and Y. Renardy, 1984, Instability of the flow of immiscible liquids with different viscosities in a pipe (Computations), Mathematics Research Center Technical Summary Report 2503; 56 pages.
8. M. Ahrens, D. D. Joseph, M. Renardy and Y. Renardy, 1984, Remarks on the stability of viscometric flow, Rheol. Acta 23, 345-354.
9. Y. Renardy and D. D. Joseph, 1985, Couette flow of two fluids between concentric cylinders, J. Fluid Mech. 150, 381-394.
10. Y. Renardy and D. D. Joseph, 1985, Oscillatory instability in a Bénard problem of two fluids, Phys. Fluids 28, 788 - 793.
11. D. D. Joseph, Y. Renardy, M. Renardy and K. Nguyen, 1985, Stability of rigid motions and rollers in bicomponent flows of immiscible liquids, J. Fluid Mech. 153, 151-165.
12. Y. Renardy and M. Renardy, 1985, Perturbation analysis of steady and oscillatory onset in a Bénard problem with two similar liquids, Phys. Fluids 28 (9) 2699 - 2708.
13. Y. Renardy, 1985, Instability at the interface between two shearing fluids in a channel, Phys. Fluids 28 (12) 3441 - 3443.
14. Y. Renardy and D. D. Joseph, 1985, Steady two-fluid flow between concentric cylinders, Advances in Rheology, Vol. 2, 219 - 224, ed. B. Mena, A. Garcia-Rejon, C. Rangel-Nafaile, published by Elsevier.
15. Y. Renardy, 1986, Instabilities in steady shearing flows of two fluids, Advances in Multiphase Flow and Related Problems, ed. George Papanicolaou, published by Society for Industrial and Applied Mathematics, 172 - 180.
16. M. Renardy and Y. Renardy, 1986, Linear stability of plane Couette flow of an upper convected Maxwell fluid, J. Non-Newtonian Fluid Mech. 22 , 23-33.
17. Y. Renardy, 1986, Interfacial stability in a two-layer Bénard problem, Phys. Fluids 29 (2) 356 - 363.
18. K. R. Rajagopal, M. Renardy, Y. Renardy and A. S. Wineman, 1986, Flow of viscoelastic fluids between plates rotating about distinct axes, Rheol. Acta 25, 259 - 267.
19. Jong Uhn Kim and Y. Renardy, 1987, Boundary control of a Timoshenko beam, SIAM J. Control Optim. vol 25 (6), 1417-1429.
20. Y. Renardy, 1987, The thin-layer effect and interfacial stability in a two-layer Couette flow with similar liquids, Phys. Fluids 30(6) 1627 - 1637.
21. Y. Renardy, 1987, Viscosity and density stratification in vertical Poiseuille flow, Phys. Fluids 30(6) 1638 - 1648.
22. W. Desch, K. B. Hannsgen, Y. Renardy and R. L. Wheeler, 1987, Boundary stabilization of an Euler-Bernoulli beam with viscoelastic damping, Proc. 26th IEEE Conference on Decision and Control, Dec., 1792 - 1795.
23. Y. Renardy, 1988, Stability of the interface in two-layer Couette flow of upper convected Maxwell liquids, Proc. Tenth International Congress on Rheology, University of Sydney, Vol. 2, 205.
24. Y. Renardy, 1988, Instabilities in steady flows of two fluids, Rocky Mountain Journal of Mathematics, vol. 18, no.2, spring, 455-477.
25. Kenneth Hannsgen, Y. Renardy and Robert Wheeler, 1988, Effectiveness and robustness with respect to time delays of boundary feedback stabilization in one-dimensional viscoelasticity, SIAM J. Control Optim. 26 (5), 1200 - 1234.
26. Y. Renardy, 1988, Stability of the interface in two-layer Couette flow of upper convected Maxwell liquids, J. Non- Newtonian Fluid Mech., 28, 99-115.
27. M. Renardy and Y. Renardy, 1988, Bifurcating solutions at the onset of convection in the Benard problem for two fluids, Physica D 32, 227 - 252.
28. M. Renardy and Y. Renardy, 1989, Stability of shear flows of viscoelastic fluids under perturbations perpendicular to the plane of the flow, J. Non-Newtonian Fluid Mechanics 32, 145 - 155.

29. Y. Renardy, 1989, Weakly nonlinear behavior of periodic disturbances in two-layer Couette-Poiseuille flow, Physics of Fluids A, 1 (10), 1666 - 1676.
30. M. Renardy and Y. Renardy, 1991, On the nature of boundary conditions for flows with moving free surfaces, J. Computational Physics. vol. 93, no. 2, 325 - 335.
31. D. D. Joseph, J. Nelson, M. Renardy and Y. Renardy, 1991, Two-dimensional cusped interfaces, J. Fluid Mech. 223, 383 - 409.
32. M. Renardy and Y. Renardy, 1992, Pattern selection in the Benard problem for a viscoelastic fluid, J. Appl. Math. and Phys. (Zeitschrift für Angewandte Mathematik und Physik), vol. 43 (1), 154-180.
33. N. Baumann, D. D. Joseph, P. Mohr and Y. Renardy, 1992, Vortex rings of one fluid in another in free fall, Phys. Fluids A, vol. 4, (3), 567-580.
34. Y. Renardy, 1993, Pattern selection for the oscillatory onset in thermosolutal convection, Phys. Fluids A (6) 1376-1389.
35. M. Renardy and Y. Renardy, 1993, Derivation of amplitude equations and the analysis of sideband instabilities in two-layer flows, Physics of Fluids A 5(11), 2738-2762, and vol. 6, p.3502.
36. Y. Renardy, 1994, Sideband instabilities in two-layer flows, Proccedings of 14th World Congress of the International Association for Mathematics and Computers in Simulation (IMACS), July 11-15, Georgia Tech, Atlanta, Volume 2, 898-901.
37. Y. Renardy and M. Renardy, 1994, Sideband Instabilities in Two-Fluid Flows, in "Two-fluid flows with and without phase change", edited by A. Narain, D. Siginer, and K. M. Kelkar, AMD-Vol. 184, American Society of Mechanical Engineers, 55-60.
38. Y. Renardy and Shu-Ming Sun, 1994, The flow of a ferrofluid down an incline, Physics of Fluids 6 (10), 3235 - 3246.
39. Y. Renardy, 1995, Weakly nonlinear behavior of periodic disturbances in two-layer plane channel flow of upper-convected Maxwell liquids, J. Non-Newtonian Fluid Mech. 56(2), 101-126.
40. Y. Renardy, 1995, Spurt and instability in a two-layer Johnson-Segalman liquid, Theoretical and Computational Fluid Dynamics, 7, 463-475.
41. Kaoru Fujimura and Y. Renardy, 1995, The 2:1 steady-Hopf mode interaction in the two-layer Bénard problem, Physica D 85, 25-65.
42. Y. Renardy, 1995, Planforms at the Onset of Instability in Double Diffusive Convection, Naval Research Reviews (1), 29 - 37.
43. Y. Renardy and M. Renardy, 1995, Instabilities in Two-Layer Channel Flows, in *Nonlinear Dynamics and Pattern Formation in the Natural Environment*, eds. A. Doelman and A. van Harten, Pitman Research Notes in Mathematics, Longman Scientific and Technical Publishing Co. 238-256.
44. Y. Renardy, 1995, Patterns at the onset of an oscillatory instability in a Fluorinert/silicone oil Bénard problem, Proc. 32nd Annual Technical Meeting of the Society of Engineering Science, New Orleans, eds. D. Hui and S. Michaelides, pp. 469-470.
45. Kaoru Fujimura and Y. Renardy, 1996, An interaction of oscillatory and steady modes in a two-layer system heated from below, in *Advances in Multi-Fluid Flows*, Eds. Y. Renardy, A. V. Coward, D. Papageorgiou, S. M. Sun, (longer version available in ICAM Report 95-09-01), published by the Society for Industrial and Applied Mathematics, Philadelphia, pp.252 - 259.
46. M. Renardy, Y. Renardy, R. Sureshkumar, A. Beris, 1996, Hopf-Hopf and steady-Hopf interactions in Taylor-Couette flow of an upper convected Maxwell liquid, J. Non-Newtonian Fluid Mechanics 63, 1-31.
47. Y. Renardy, 1996, Pattern formation for oscillatory bulk-mode competition in a two-layer Bénard problem, J. Applied Mathematics and Physics (Zeitschr. für angew. Math. und Phys.), vol.47, 567-590.
48. Y. Renardy, 1996, An instability of plane Couette flow of the Johnson-Segalman liquid, in *Advances in Multi-Fluid Flows*, Eds. Y. Renardy, A. V. Coward, D. Papageorgiou, S. M. Sun, published the the Society for Industrial and Applied Mathematics, Philadelphia, pp. 199 - 210.
49. Y. Renardy and R. W. Schmitt, 1996, Linear stability analysis of salt fingers with surface evaporation or warming, Physics of Fluids vol.8 (11), pp.2855-2867.
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51. Yuriko Renardy, M. Renardy, R. Sureshkumar, A. Beris, 1996, Hopf-Hopf and steady-Hopf interactions in Taylor-Couette flow of an upper convected Maxwell liquid, Proceedings of the XIXth International Congress of Theoretical and Applied Mechanics, August 25-31, Kyoto, Japan.
52. A. V. Coward and Y. Y. Renardy, 1996, Small amplitude oscillatory forcing as a dynamic stabilization or destabilization mechanism for two-layer flows, *Advances in Multi-Fluid Flows*, Eds. Y. Renardy, A. V. Coward, D. Papageorgiou, S. M. Sun, published by the Society for Industrial and Applied Mathematics, Philadelphia, pp. 246 - 251.
53. A. Coward and Y. Renardy, 1997, Small amplitude oscillatory forcing on two-layer plane channel flow, (Institute for Mathematics and Its Applications University of Minnesota Preprint Series 1392 March 1996). Journal of Fluid Mechanics, volume 334 (10 March 1997), pp. 87-109.
54. D. D. Joseph, R. Bai, K. Chen and Y. Renardy, 1997, Core-annular flow, in *Annual Reviews of Fluid Mechanics*, (also available as University of Minnesota Supercomputer Institute Research Report 96/31 March 1996), vol. 29, pp.65-90.
55. A. V. Coward, Y. Y. Renardy, M. Renardy, J. R. Richards, 1997, Temporal evolution of periodic disturbances in two-layer Couette flow with a VOF/CSF scheme, Journal of Computational Physics, 132, 346-361.
56. Y. Renardy, 1997, Snakes and corkscrews in core-annular flow of two fluids, Journal of Fluid Mechanics 340, 297-317.
57. A. V. Coward and Y. Y. Renardy, 1997, Thin-film core-annular flow of upper-convected Maxwell liquids, Journal of Non-Newtonian Fluid Mechanics 70, pp. 155-183.
58. Y. Renardy, 1997, Snake and corkscrew waves in core-annular flow, Proc. 1997 ASME International Mechanical Engineering Congress and Exposition, Fluids Engineering Division FED-Vol.244, pp.61-68.
59. Y. Renardy, 1997, Instabilities in two-layer channel flows, pp. 178-180, WHOI-97-18, *Bio-Physical Models of Oceanic Population Dynamics*, 1994 Summer Study Program in Geophysical Fluid Dynamics, by G. Flierl and D. Olson, Woods Hole Oceanographic Institution Technical Report, Nov. 1997.
60. C. D. Andereck, P. W. Colovas, M. M. Degen and Y. Y. Renardy, 1998, Instabilities in two-layer Rayleigh-Benard convection: overview and outlook, International Journal of Engineering Science, vol. 36 / 12 - 14, pp. 1451-1470.
61. Y. Renardy, 1998, A non-axisymmetric pattern formation in core-annular flow, Proceedings of the IUTAM First International Symposium on Lubricated Transport of Viscous Materials, ed. H. Ramkissoon, Fluid Mechanics and Its Applications vol. 43, Kluwer Academic Publishers, pp. 131-148.
62. Y. Renardy, M. Renardy, K. Fujimura, 1999, Takens-Bogdanov bifurcation on the hexagonal lattice for double-layer convection, Physica D. Vol 129, pp. 171-202.
63. Y. Renardy and M. Renardy, 1998, Influence of non-Boussinesq effects on patterns in salt-finger convection, Zeitschrift für angewandte Mathematik und Physik, vol. 49, pp 224-250.
64. Y. Renardy and D. O. Olagunju, 1998, Inertial effect on stability of cone-and-plate flow. Part 2: Non-axisymmetric modes, J. Non-Newtonian Fluid Mech., 78(1), pp 27-45.
65. B. Khomami, Y. Renardy, K. C. Su, M. A. Clarke, 2000, An experimental/theoretical investigation of interfacial stability in superposed pressure-driven channel flow of Newtonian and well-characterized viscoelastic fluids. Part II: Nonlinear stability, J. Non-Newtonian Fluid Mech. 91/1, pp. 85-104.
66. Y. Renardy, M. Renardy, 1998, A model equation for axisymmetric stability of small-gap parallel-plate flows, J. Non-Newtonian Fluid Mechanics, vol. 77, pp. 103-114.
67. Y. Renardy, M. Renardy, 1999,Instability due to second normal stress jump in two-layer shear flow of the Giesekus fluid, J. Non-Newtonian Fluid Mechanics 81, 215-234.
68. H. Wilson, M. Renardy, Y. Renardy, 1999, Structure of the spectrum in zero Reynolds number shear flow of the upper convected Maxwell and Oldroyd-B liquids, J. Non-Newtonian Fluid Mech. 80, pp. 251-268.
69. Jie Li, Y. Renardy, M. Renardy, 1998, A numerical study of periodic disturbances on two-layer Couette flow, Physics of Fluids 10 (12) 3056-3071.
70. Y. Renardy, C. G. Stoltz, 1999, Time-dependent pattern formation for two-layer convection, in *Pattern Formation in Continuous and Coupled Systems*, eds. M. Golubitsky, D. Luss, S. H. Strogatz, Volume 115 in the IMA Volumes in Mathematics and Its Applications, Springer-Verlag New York, pp.203-214.

71. Jie Li, Y. Renardy, 1999, Direct simulation of unsteady axisymmetric core-annular flow with high viscosity ratio, J. Fluid Mech. 391, pp. 123-149.
72. Jie Li, Y. Renardy, M. Renardy, 2000, Numerical simulation of breakup of a viscous drop in simple shear flow with a volume-of-fluid method, Physics of Fluids, Vol. 12(2), 269-282.
73. Y. Renardy, J. Li, 1999, Comment on 'A numerical study of periodic disturbances on two-layer Couette flow Phys Fluids 10 (12), pp.3056-3071'. Phys. Fluids. 11 (10) 3189 - 3190.
74. Jie Li, Y. Renardy, 2000, Numerical study of flows of two immiscible liquids at low Reynolds number, SIAM Review, Vol.42, No. 3, pp. 417 – 439.
75. Y. Renardy and J. Li, 2000, Numerical simulation of two-fluid flows of viscous immiscible liquids, Proceedings of the IUTAM Symposium on Nonlinear Waves in Multiphase Flow, Eds. H.-C. Chang. Kluwer Academic Publishers. pp. 117 - 126.
76. J. Li and Y. Renardy, Shear-induced rupturing of a viscous drop, Paper FEDSM2000-11148, Proc. 2000 ASME Fluids Engineering Summer Conference June 11-15, 2000, Boston, MA.
77. Y. Renardy, C. G. Stoltz, 2000, Time-dependent pattern formation for convection in two layers of immiscible liquids, Int. J. Multiphase Flow, 26/11, pp. 1875-1889.
78. Y. Renardy and J. Li, 2001, Merging of drops to form bamboo waves, Int. J. Multiphase Flow. vol. 27/5,pp. 753-763.
79. Y. Renardy and J. Li, 2000, Parallelized simulations of two-fluid dispersions, in 'Applications on Advanced Architecture Computers', G. Astfalk ed., SIAM News, December, pp 1.
80. M. Renardy and Y. Renardy, 2003, 'Stability and instability in viscous fluids', in *Handbook of Mathematical Fluid Dynamics*, vol. 2, eds. S. J. Friedlander and D. Serre, Elsevier Science. ISBN: 0-444-51287-X pp. 223-287.
81. M. Renardy, Y. Renardy and J. Li, 2001, Numerical simulation of moving contact line problems using a volume-of-fluid method, J. Comp. Phys. 171, pp. 243-263.
82. Jie Li and Yuriko Renardy, 2000, Shear-induced rupturing of a viscous drop in a Bingham liquid, J. Non-Newtonian Fluid Mech. Volume 95/2-3, pages 235-251.
83. Yuriko Renardy and Jie Li, 2000, Breakup under shear of a viscous drop in a Bingham liquid, Proceedings of Rheology 2000 – XIIIth International Congress on Rheology, Cambridge, UK, 21-26 August 2000.
84. Jie Li and Yuriko Renardy, 2000, Breakup of a viscous drop under shear, Abstract Book for ICTAM2000, ISSN 0073-5264, No. 950.
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96. Michael and Yuriko Renardy, 2004, Similarity solutions for breakup of jet of power law fluids, J. Non-Newtonian Fluid Mech. 122,pp.303-312.
97. Y. and M. Renardy, T. Chinyoka, D. B. Khismatullin, J. Li, 2004, A viscoelastic VOF-PROST code for the study of drop deformation. ASME Transactions Journal, Heat Transfer/Fluids Engineering Summer Conference, HT-FED2004 CDROM Track 5, 56114.pdf.
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100. Y. Renardy, 2006, Numerical simulation of a drop undergoing large amplitude oscillatory shear, Rheologica Acta, 45(3), pp 223-227.
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105. K. Verhulst, R. Cardinaels, P. Moldenaers, Y. Renardy, S. Afkhami, 2009.Influence of viscoelasticity on drop deformation in shear flow. Part 2: Dynamics. J. Non-Newtonian Fluid Mech. v 156 pp 44-57.
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113. S. Afkhami, P. Yue, Y. Renardy, 2009, A comparison of viscoelastic stress wakes for 2D and 3D Newtonian drop deformation in a viscoelastic matrix under shear. Phys. Fluids, vol. 21, 072106 (7 pages). doi:10.1063/1.3182830
114. Y. Renardy, M. Renardy, S. Assighaou, L. Benyahia, 2009, Numerical simulation of drop retraction after a strain jump, Phys. Rev. E. volume 79, issue 4, pp. 046323-1 to 046323-4.
115. S. Afkhami, A. J. Tyler, Y. Renardy, M. Renardy, T. G. St. Pierre, R. C. Woodward, J. S. Riffle. 2010. Deformation of a hydrophobic ferrofluid droplet suspended in a viscous medium under uniform magnetic fields. J. Fluid Mech. v. 663, pp. 358-384.

116. K. L. Maki, Y. Renardy, 2010, The dynamics of a simple model for thixotopic yield stress fluids. J. Non-Newtonian Fluid Mech., 165,pp 1373-1385
117. S. Afkhami, L. J. Cummings, Y. Renardy, M. Renardy, 2010, Direct numerical simulation of ferrofluid drops in a cylindrical microfluidic channel under the influence of a non-uniform magnetic field, Proc. 16th US National Congress of Theoretical and Applied Mechanics (USNCTAM2010). June 27-July 2, 2010, State College, PA, USA.
118. R. Cardinaels, S. Afkhami, Y. Renardy, P. Moldenaers, 2011, An experimental and numerical investigation of the dynamics of microconfined droplets in systems with one viscoelastic phase. J. Non-Newtonian Fluid Mech. 166, 52-62.
119. S. Afkhami, Y. Renardy, M. Renardy, 2010, Effects of viscosity ratio on the transient and steady deformation of a Newtonian drop in a viscous and viscoelastic matrix under shear flow, Proc. 16th US National Congress of Theoretical and Applied Mechanics (USNCTAM2010). June 27-July 2, 2010, State College, PA, USA.
120. P. Yue, S. Lee, S. Afkhami, Y. Renardy, 2012, On the motion of superparamagnetic particles in magnetic drug targeting, Acta Mechanica 223(3), 505-527.
121. S. Afkhami, A. M. Leshansky, Y. Renardy, 2011, Numerical investigation of elongated drops in a microfluidic T-junction. Phys. Fluids 23, 022002 (2011); doi:10.1063/1.3549266 (14 pages). This was selected for the Virtual Journal of Nanoscale Science & Technology – February 14, 2011 Volume 23, Issue 6. The Physics of Fluids article made the top of the top 20 downloaded papers for that journal during the month it was published, March, May and June, 2011.
122. K. L. Maki, Y. Renardy, 2012, The dynamics of a viscoelastic fluid which displays thixotopic yield stress behavior. J. Non-Newtonian Fluid Mech. v181-182, pp 30-50.
123. M. Renardy, Y. Renardy, 2013, On the stability of inviscid parallel shear flows with a free surface. Journal of Mathematical Fluid Dynamics, Volume 15(1), 129-137.
124. Pengtao Yue and Yuriko Renardy, 2013, Spontaneous penetration of a non-wetting drop into an exposed pore. Phys. Fluids. 25, 052104 (19 pages).
125. S. Afkhami and Y. Renardy, 2013, A volume-of-fluid formulation for the study of co-flowing fluids governed by the Hele-Shaw equations, Phys. Fluids. vol. 25 (8), pp 082001 (19 pages).
126. Y. Renardy and H. Grant, 2013, Uniaxial extensional flow of a thixotropic yield stress fluid: a viscoelastic model, Rheologica Acta, Volume 52, Issue 10 (2013), Page 867-879.
127. H. Grant and Y. Renardy, 2015, Equibiaxial extension of a viscoelastic partially extending strand convection model with large relaxation time. Rheol. Acta. 54, pp 563-579.
128. M. and Y. Renardy, 2016, Thixotropy in yield stress fluids as a limit of viscoelasticity. IMA Journal of Applied Mathematics 81, pp 1 – 16. doi: 10.1093/imamat/hxw031
129. Y. Renardy and H. V. Grant, 2016, Stretch and hold: The dynamics of a filament governed by a viscoelastic constitutive model with thixotropic yield stress behavior, Phys. Fluids 28 (5) 053104. http://dx.doi.org/10.1063/1.4948661. Correction for figure 6(a) is in Phys. Fluids 28(8).
130. Y. Renardy and M. Renardy, 2017, Stability of shear banded flow for a viscoelastic constitutive model with thixotropic yield stress behavior. Journal of Non-Newtonian Fluid Mechanics. Vol. 244, June 2017, pp 57-74.
131. S. Afkhami and Y. Renardy, 2017, Ferrofluids and magnetically guided superparamagnetic particles in flows: a review of simulations and modeling. J. Eng. Math. 107(1),231-251.
132. Y. Renardy and M. Renardy, 2018, A singular perturbation study of the Rolie-Poly model. Vol.262, pp 52-67. J. Non-Newtonian Fluid Mechanics.

News Article

1. 'Mixed Emulsions: Virginia Tech researchers simulate the behavior of emulsions as they mix and break into drops' by Katherine A. Caponi. Full article in Access Magazine, July 7, 2002, National Center for Supercomputing Applications. Summary online at http://access.ncsa.uiuc.edu/CoverStories/dropdeform/.
2. Virginia Tech College of Science Annual 2014, 'Women in Science', magazine article, online at http://www.joomag.com/magazine/vt-college-of-science-magazine-annual-2014 /01440150014084769 31?page=2

Books

1. D. D. Joseph and Y. Renardy, 1993, *Fundamentals of Two-Fluid Dynamics. Part 1: Mathematical Theory and Applications*, Springer Verlag New York, Interdisciplinary Applied Mathematics Series vol. 3. ISBN 0-387-97913-1 Springer Verlag New York Berlin Heidelberg, ISBN 3-540-97913-1 Springer-Verlag Berlin Heidelberg New York.
2. D. D. Joseph and Y. Renardy, 1993, *Fundamentals of Two-Fluid Dynamics. Part 2: Lubricated Transport, Drops and Miscible Liquids*, Springer Verlag New York, Interdisciplinary Applied Mathematics Series vol. 4. ISBN 0-387-97910-7 Springer-Verlag New York Berlin Heidelberg, ISBN 3-540-97910-7 Springer-Verlag Berlin Heidelberg New York.

Book Edited

1. Y. Y. Renardy, A. V. Coward, D. Papageorgiou, S. M. Sun, 1996, *Advances in Multi-Fluid Flows*, Society for Industrial and Applied Mathematics Proceedings in Applied Mathematics 86. ISBN 0-89871-377-3.

Book Reviews

1. Review of "Viscous Flows", by H. Ockendon and J. R. Ockendon, Cambridge Texts in Applied Mathematics, 1995, for ZAMP (1996).
2. Review of "Fluid Dynamics for Physicists" by T. E. Faber, Cambridge University Press, 1995, for ZAMP 50 (1999), pp.172-173.
3. Review of "Asymptotic Modelling in Fluid Mechanics", eds. P-A. Bois, E. Deriat, R. Gatignol, A. Rigolot, Lecture Notes in Physics, Springer Verlag, 1995, for ZAMP (1996).
4. Review of "Elements of Newtonian Mechanics including nonlinear dynamics" by J. M. Knudsen and P. G. Hjorth, for ZAMP (1997).
5. Review of "Spatio-Temporal Pattern Formation With Examples from Physics, Chemistry, and Materials Science", by Daniel Walgraef, Springer Verlag New York 1996 for ZAMP, vol 49,pp 681 (1998).
6. Review of "Dissipative Structures and Chaos" by H. Mori and Y. Kuramoto, translated by G. C. Paquette, Springer Verlag Berlin 1998. ZAMP, Vol. 50 (1999) pp. 1009.
7. Review of "Explosive Instabilities in Mechanics" by B. Straughan, Springer Verlag Berlin 1998. ZAMP, Vol. 50 (1999) pp. 1010.
8. Review of "Evolution of Spontaneous Structures in Dissipative Continuous Systems", F. H. Busse, S. C. Müller eds, Lecture Notes in Physics, M55, Springer-Verlag Berlin Heidelberg 1998, for ZAMP Vol. 51(2) (2000),pp.332.
9. Review of "Finite Element Analysis of Non-Newtonian Flow" by Hou-Cheng Huang, Zheng-Hua Li and Asif S. Usmani. Springer Verlag London 1999, for ZAMP vol. 52, No. 1, pp.170.(2001)
10. Review of "Asymptotic Approaches in Nonlinear Dynamics, New Trends and Applications", by J. Awrejcewicz, I. V. Andrianov, L. I. Manevitch, Springer Verlag Berlin 1998, for ZAMP Vol. 51 (2000) pp. 169.
11. Review of "Engineering Rheology", Second Edition, by Roger I. Tanner, for SIAM Review, 2001.vol. x, pp.23-24.

GRANTS

1. National Science Foundation Research Opportunities for Women Award Aug. 1986 - Jan. 89. Grant No. DMS-8615203. Title: "Stability and Bifurcation in Fluid Dynamics". Principal Investigator: Yuriko Renardy. $18,000.
2. National Science Foundation Grant DMS-8720298 (Career Advancement Award, Research Opportunities for Women Program). Title: "Stability and Bifurcation in Two-layer Shearing Flows". Purpose: Visiting professorship, to collaborate with Prof. Daniel D. Joseph at the University of Minnesota for Sep. 1, 1988 - Nov. 30, 1989. Principal Investigator: Yuriko Renardy. $9783.
3. National Science Foundation Grant DMS - 8902166. Title: "Stability and Bifurcation in Two-Layer Flows", for August 1, 1989 - January 31, 1992. Principal Investigator: Yuriko Renardy. $35,000.
4. Office of Naval Research Mathematical Sciences Division Grant No. N00014-92-J-1664. Title: "Nonlinear Stability Analyses in Fluid Dynamics", for June 1, 1992 - December 31, 1994. Principal Investigator: Yuriko Renardy. $193,360.

5. National Science Foundation Grant CTS-9307238. Title: "Interfacial Shapes in the Design of Composite Polymeric Materials", September 15, 1993 - September 15, 1996. Principal Investigator: Yuriko Renardy. $200,839.
6. 1995 AMS-IMS-SIAM Joint Summer Research Conference in the Mathematical Sciences titled "Analysis of Multi-Fluid Flows and Interfacial Instabilities", University of Washington, Seattle, July 23-27. Chairman: Yuriko Renardy. $20,000 NSF grant to AMS.
7. Office of Naval Research renewal of Grant No. N00014-92-J-1664, $190,984, January 1, 1995 - December 31, 1997. Principal Investigator: Yuriko Renardy.
8. Office of Naval Research Grant No. N00014-95-1-0459, for the Annual Meeting of the Society of Natural Philosophy, titled "Innovations in the analysis of nonlinear phenomena in continuum mechanics", April 7-9, 1995, P. I. Bob Rogers, Yuriko Renardy, Michael Renardy. $9,800.
9. National Science Foundation Division of Chemical and Transport Systems, CTS-9612308, titled "Interfacial dynamics in bicomponent materials: viscous, viscoelastic and thermal effects", $170,000, for March 1,1997-Feb 29, 2000. Principal Investigator: Yuriko Renardy.
10. National Science Foundation Division of Chemical and Transport Systems, Supplement to CTS-9612308, $7,000 equipment, 1998.
11. National Science Foundation CBMS Regional Conference: Mathematical Analysis of Viscoelastic Flows. Grant DMS-9813241. Principal Investigator: David O. Olagunju. Co-principal Investigator: Yuriko Renardy. Submitted through the University of Delaware, $26,050, June 19-23, 1999.
12. National Science Foundation U.S.-France Cooperative Research: Numerical Investigation of Two-Fluid Flows of Viscous Immiscible Fluids, 3/1/99 - 8/28/2002, NSF-INT 9815106, $13,500. Principal Investigator: Yuriko Renardy, Co-PI: M. Renardy, S. Zaleski (Paris VI).
13. National Computational Science Alliance (NCSA) Origin 2000, Grant No. CTS990010N, Principal Investigator: Jie Li, Co-PI: Yuriko Renardy. 1/31/99-1/31/00. Start-Up: 4000.0 SU hours.
14. National Computational Science Alliance (NCSA) University of Illinois at Urbana - Champaign, Origin 2000, Grant No. CTS990059N, Principal Investigator: Yuriko Renardy, Co-PI: Jie Li. 11/17/99 - 11/30/2000. Project title: 'Start-Up: Breakup of a viscous drop in a Bingham liquid'. 4000.0 SU hours.
15. National Computational Science Alliance proposal CTS990063N. Project title: 'Numerical simulation of two-fluid flows: drop breakup and encapsulation', Origin2000. Principal Investigator: Yuriko Renardy. 12/15/99 - 12/31/2000. 40,000 SU hours.
16. American Chemical Society Petroleum Research Fund ACS-PRF 36109-AC. $60,000. Project Title: Interfacial Dynamics in Pipeline Transportation of Two Viscous Liquids: Core-Annular Flows, Drops, and Encapsulation. July 1, 2000 - August 31, 2002. Graduate student funded: Mary Ann Drumright-Clarke. Principal Investigator: Yuriko Renardy.
17. NSF-DMS 0077177 Scientific Computing Research Environments for the Mathematical Sciences, with Michael Renardy.
18. National Computational Science Alliance Supplement to 'Numerical simulation of two-fluid flows: drop breakup and encapsulation', Origin2000. Principal Investigator: Yuriko Renardy. 33,800 SU hours. 10/1/00-9/30/01.
19. National Computational Science Alliance 'Numerical simulation of two-fluid flows: drop breakup and encapsulation', Origin2000. Principal Investigator: Yuriko Renardy. 58,400 SU hours. -12/31/01.
20. National Science Foundation Chemical and Transport Systems. NSF-CTS 0090381. Title: "Interfacial processing for emulsions: droplet breakup with inertia, non-Newtonian and surfactant effects." Principal Investigator: Yuriko Renardy. $240,000. 3/1/2001-8/28/2004.
21. National Computational Science Alliance 'Numerical simulation of two-fluid flows: drop breakup and encapsulation', CTS000007N, Origin2000. Principal Investigator: Yuriko Renardy. 60,000 SU hours. 12/31/01-8/31/2003.
22. 2003-2010: I am part of the National Institute of Health Grant 1R25GM066534-01A1 (PI Edward Smith, Department of Animal and Poultry Science) Virginia Tech Post-baccalaureate Research and Education Program (PREP).
23. National Center for Supercomputing Applications, High Performance Computing Environment IBM P690, 10,000 SUs, DMS050002, 10/27/04 - 10/30/05. Title: The development of algorithms to investigate drop fragmentation under shear for viscoelastic liquids.

24. National Science Foundation, Mathematical Sciences Priority Area of the Division of Chemical and Transport Systems (CTS) and the Division of Mathematical Sciences (DMS). DMS-0456086. Title: The development and implementation of algorithms to investigate drop fragmentation under shear for viscoelastic liquids with surfactant. Principal Investigator: Yuriko Renardy. $200,000. 6/15/2005-5/31/2009.
25. National Center for Supercomputing Applications, High Performance Computing Environment IBM P690, 10,000 SUs, CTS060022, 1/17/06 - 1/31/07. Title: The investigation of viscoelastic stresses in simulations of drop deformation under shear.
26. NCSA (National Center for Supercomputing Applications, University of Illionois at Urbana - Champaign), grant TG - CTS060013N for 30,000 SU(Service Units), 6/7/2007-6/30/2008. Title: The influence of viscoelasticity on drop deformation in shear flow: transient deformation, orientation and break-up
27. NCSA SGI Altix Renewal, grant CTS060022 for 30,000 service units, 7/23/2008-7/22/2009. Title: Numerical investigation of drop deformation in shear flow of immiscible viscoelastic liquids.
28. Title: Two-fluid dynamics in polymer processing, ferrohydrodynamics and electrowetting. TeraGrid Large Resource Allocations grant MCA08X019. 500,000 service units at Purdue University Steele cluster, 100,000 service units TeraGrid Wide Roaming Access. 10/1/2008-9/30/2010. Principal Investigators: Yuriko Renardy and Shahriar Afkhami.
29. National Science Foundation Division of Mathematical Sciences 0907788. Title: Computational study of drop deformation in systems with two immiscible liquids. Principal Investigator: Yuriko Renardy. Co-Principal Investigator: Pengtao Yue. 6/1/2009-5/31/2013. $247,880.
30. I am the mentor for Dr Kara Maki (Institute for Mathematics and its Applications postdoctoral fellow, University of Minnesota) for 2 weeks during the summers of 2010 and 2011 for her Association for Women in Mathematics - National Science Foundation travel grant.
31. National Science Foundation Division of Mathematical Sciences 1311707. Modeling and numerical simulation of yield stress fluids, and studies of viscoelasticity and confinement in the flow of two immiscible fluids.$192,805. PI Yuriko Renardy. 8/15/2013-7/31/2017

INVITED LECTURES AT CONFERENCES

1. Conference on Nonlinear Partial Differential Equations, Feb. 5 - 7, 1986, Salt Lake City, UT.
2. SIAM Workshop on Multiphase Flow, June 2 - 4, 1986, Leesburg, VA.
3. Tagung at Oberwolfach, Germany, on Mathematical Problems in Viscoelastic Flows, May 16 - 22, 1993.
4. The American Geophysical Union's Chapman Conference on Double Diffusion, Arizona State University, Nov. 3-6, 1993. I also organized the session on mathematical problems in double diffusive convection.
5. International Union of Theoretical and Applied Mechanics, Conference on Numerical Simulations of Non-isothermal Viscoelastic Liquids, Kerkrade, The Netherlands, Nov.1-3, 1993.
6. International Symposium on Viscoelastic Fluids, Trinidad and Tobago, January 4-7, 1994, and chaired a session.
7. Workshop on fluid flows, in honor of Yuriko Renardy, RIMS (Research Institute for Mathematical Sciences), Kyoto University, organized by H. Okamoto, March 9, 1994.
8. The 49th Annual Meeting of the Japan Physical Society, Fukuoka, Japan, March 28-31, 1994, Tokubetsu-koen (the opening lecture for fluid dynamics).
9. International Conference on Nonlinear Dynamics and Pattern Formation in the Natural Environment, ICPF 94, Minisymposium on Instabilities in Two-Fluid Flows (organizer and chair of two minisymposia of this title), July 4-7, 1994, The Netherlands.
10. 14th International Association for Mathematics and Computers in Simulation (IMACS) World Congress on Computation and Applied Mathematics, Symposium on Linear and Nonlinear Hydrodynamic Stability, Atlanta, GA, July 11-15, 1994.
11. Woods Hole Oceanographic Institution Summer School in Geophysical Fluid Dynamics, MA, August 11, 1994.
12. The American Society of Mechanical Engineers Winter Annual Meeting, Chicago, IL, Nov.6 - 11, 1994, Symposium on "Two Fluid Flows With or Without Phase Change".
13. The 38th Annual Meeting of the Society of Natural Philosophy, Blacksburg, April 7-9, 1995.

14. Office of Naval Research Workshop on Dynamical Systems and Oceanography, California Institute of Technology, April 28 - 29, 1995, invited talk on "Future Directions in the Application of Mathematical Analysis to Oceanographic Problems".
15. Society of Engineering Science Annual Meeting, New Orleans, October 29-Nov. 2, 1995.
16. Workshop on Unresolved Experimental Dilemmas in the Dynamics of Complex Fluids, Isaac Newton Institute, University of Cambridge, Jan. 1996.
17. Euroconference on Constitutive Relations and their Applications, Isaac Newton Institute, University of Cambridge, April 17, 1996.
18. Tagung at Oberwolfach, Germany, on Dynamical Systems with Applications to Fluid Dynamics, June 30-July 6, 1996.
19. The 21st Sapporo Symposium on Partial Differential Equations, August 5 -7, Hokkaido University, Japan.
20. International Union of Theoretical and Applied Mechanics Congress, Kyoto, Japan, Symposium on Viscoelastic Flows, August 25-30, 1996.
21. American Institute for Chemical Engineers Annual meeting, Minisymposium on dynamical systems, Nov 10-15, 1996.
22. International Symposium on Lubricated Transport of Viscous Materials, invited talk and session chair for the opening technical session, January 7-10, 1997, Tobago.
23. The Second International Conference on Dynamics of Polymeric Liquids, Capri, Italy, May 7-10, 1997.
24. Symposium on "Gas Liquid Flows in Fluid Mechanics and Heat Transfer", 1997 International Mechanical Engineering Congress and Exposition (Winter Annual Meeting), Dallas, TX, Nov 16-21, 1997.
25. Workshop on Multi-Phase/Multi-Fluid Fluid Dynamics, March 11-13, 1999, University of Pennsylvania, Philadelphia. Organizer: Howard Hu. Invited lecture and invited after-dinner speaker (in honor of Daniel D. Joseph's 70th Birthday).
26. Minisymposium "Complex Flows: Modeling, Analysis, and Simulation" organized by Paul G. Schmidt and A. J. Meir, at the 1999 SIAM Annual Meeting, Atlanta, GA, May 12-15.
27. International Union of Theoretical and Applied Mechanics (IUTAM) Symposium on Nonlinear Wave Behavior in Multi-phase Flow at the University of Notre Dame, organized by H. C. Chang and M. McCready, July 7-9, 1999.
28. International Mathematics Meeting (Joint Australian Mathematical Society - American Mathematical Society), July 12-16, 1999, University of Melbourne, Australia. Special Session on Fluid Dynamics, organized by Susan Friedlander and Roger Grimshaw.
29. 2000 American Mathematical Society Southeastern Section Meeting, University of Louisiana at Lafayette, LA. Meeting # 954. April 14-16, 2000. Session on Fluid Dynamics.
30. XIII International Congress on Rheology, Cambridge, UK, 20-25 August, 2000. Non-Newtonian Fluid Mechanics minisymposium. Session chair.
31. Invited Minisymposium at First SIAM Conference on Computational Science and Engineering. Title: Fundamental Advances in Computations and Simulations in Chemical Engineering. Sep 21-23, 2000, Washington DC.
32. Session chair and speaker, area 10d Numerical Analysis session, Annual Meeting of the American Institute of Chemical Engineers, Los Angeles, CA. Nov 2000.
33. Session chair for Flow Instabilities, and speaker. Member of Program Committee, Society of Rheology 72nd Annual Meeting, Hilton Head, SC, Feb 11-15, 2001.
34. Session chair and speaker, area 10d Numerical Analysis session, Annual Meeting of the American Institute of Chemical Engineers, Reno, NV. Nov 2001.
35. Conference on Selected Topics in Interfacial Phenomena in Physico-Chemical and Bio Processes, Giessen, Germany, Sep 12-16, 2001. Moved to March 1-3, 2002, University of Florida, Gainesville.
36. Symposium on Multi-component and Multiphase flow, 14th US National Congress on Theoretical and Applied Mechanics, June 25 2002, Blacksburg, VA. Organizer with Peter Wapperom, D. Khismatullin, E. Bruce Pitman (SUNY Buffalo). I also gave a presentation.
37. Minisymposium on Complex Flows From Analysis to Applications, organized by Paul Schmidt and Amnon J. Meir, 2002 Society for Industrial and Applied Mathematics 50th Anniversary and Annual Meeting, July 12, 2002, Philadelphia.

38. Invited speaker. Conference on Frontiers in Applied and Computational Mathematics, New Jersey Institute of Technology, May 21-22, 2004.
39. Sixth International Symposium on Numerical Methods for multiphase flow, 2004 ASME Fluids Engineering Division Summer Meeting, Charlotte, NC, July 13-15, 2004.
40. Invited speaker, special session on stability issues in fluid dynamics, AMS Sectional Meeting, Northwestern University, October 23-24, 2004.
41. Invited speaker, special session on frontiers on complex fluids: analytic and computational methods, AMS Sectional Meeting, University of Delaware, April 3, 2005.
42. Invited speaker, International Workshop on Numerical Methods in Non-Newtonian Flows, Santa Fe, NM, June 12-15, 2005.
43. Invited speaker, Banff International Research Station for Mathematical Innovation and Discovery, 06w5047 Interfacial dynamics in complex fluids, May 27-June 1, 2006.
http://www.pims.math.ca/birs/birspages.php?task=displayevent&event_id=06w5047
44. Isaac Newton Institute for Mathematical Sciences, Dynamics of complex fluids: 10 years on. Oct. 2-6, 2006. http://www.newton.cam.ac.uk/programmes/DCF/dcfw10.html
45. Invited lecture in the thematic seminar series "Analytical and Computational Issues related to Fluid Dynamics", Center for Computational and Applied Math (CCAM), Purdue University, March 30, 2007.
46. 31st SIAM (Society for Industrial and Applied Mathematics) Southeastern-Atlantic Section Conference, Oak Ridge National Laboratory and University of Memphis, May 4 - 5, 2007. One-hour plenary presentation.
47. 'Modeling and simulation of viscoelastic flows', minisymposium organizer and speaker, 2007 Society for Industrial and Applied Mathematics Conference on Analysis of Partial Differential Equations, Phoenix, AZ, Dec 9-12, 2007.
48. Symposium on Complex Fluid Flows. May 2-3 2009, University of Minnesota, Minneapolis MN. Invited lecture. http://www.seas.upenn.edu/ hhu/ddj-2009/Program.pdf
49. IMA Annual Program Year Workshop on Flowing Complex Fluids: Fluid Mechanics - Interaction of Microstructure and Flow, Oct 12-16,2009.
http://www.ima.umn.edu/2009-2010/W10.12-16.09/ Lecture on 'Numerical investigation of drop deformation in shear', video at http://www.ima.umn.edu/videos/?id=1107
50. 2010 Annual meeting of the Canadian Applied and Industrial Mathematics Society (CAIMS)/ Sociéte Canadienne de Mathématiques Appliquées et Industrielles (SCMAI), Memorial University of Newfoundland, July 17-20, 2010.
51. 2010 SIAM Annual Meeting, Pittsburgh, PA, July 13-16, 2010, invited lecture in the minisymposium 'Analysis and application of numerical methods for multi-phase/multi-fluid flow', organized by M. Sussman and G. Puckett.
52. Invited lecture in the Minisymposium on 'Advanced numerical techniques for flows with interfacial transport phenomena', organized by L. Tobiska and A. Reusken, 16th International Conference on Finite Elements in Flow Problems, March 23-25, 2011, Munich, Germany.
53. Minisymposium on 'Advances in Modeling and Simulation of Non-Newtonian Materials', 7th International Congress on Industrial and Applied Mathematics - ICIAM 2011, July 18-22, 2011, Vancouver, Canada, speaker.
54. Plenary speaker (Stewartson Memorial Lecture), British Applied Mathematics Colloquium 2012, March 27-29, 2012, University College, London.
55. Invited presentation, mini-symposium on 'Complex Fluid Flows in Memory of Daniel D. Joseph', 65th Annual Meeting of the American Physical Society Division of Fluid Dynamics, 11/19/2012.
56. Southeastern-Atlantic Regional Conference on Differential Equations (SEARCDE) , plenary speaker, September 21 and 22, 2013, at the University of Tennessee, Knoxville.
57. Summit on 2009-10 Thematic Year on Complex Fluids and Complex Flows, Institute for Mathematics and Its Applications, University of Minnesota -Twin Cities, May 7-9, 2014. Invited participant.
58. Invited speaker, Banff International Research Station workshop on 'Mathematical approaches to interfacial dynamics in complex fluids', 25 June 2017 to 30 June 2017.
59. Invited speaker, 18th International Workshop on Numerical Methods in Non-Newtonian Flows, UBC Canada 12 June 2017 to 15 June 2017.

60. Invited speaker, Society of Engineering Science, Taylor Medal Symposium, SES 2017, 54th Annual Technical Meeting, Boston MA, 7/25/17- 7/28/2017.

Invited Lectures at Institutions, Colloquia and Contributed Talks at Conferences

1980. University of Western Australia; University of Wisconsin-Madison;
1981. University of Montreal; Florida State University-Tallahassee; University of Chicago; University of Minnesota;
1982. Twenty-Eighth Conference of Army Mathematicians; University of Minnesota;
1983. University of Wisconsin-Madison; Eighteenth Midwestern Mechanics Conference; First Army Conference on Applied Mathematics and Computng; Conference in honor of J. Keller's 60th birthday, Northwestern University; University of Stuttgart, Germany; University of Heidelberg, Germany;
1984. Centre for Mathematical Analysis, The Australian National University; University of Melbourne, Australia; University of Western Australia; University of Adelaide; I chaired a session and gave a talk at the Ninth International Congress on Rheology, Acapulco, Mexico; Society of Natural Philosophy Meeting, Madison, Wisconsin;
1985. Carnegie-Mellon University; University of Stuttgart, Germany; Ohio State University, Columbus; Virginia Tech;
1986. American Physical Society Division of Fluid Dynamics 39th Annual Meeting, Ohio;
1987. American Physical Society Division of Fluid Dynamics 40th Annual Meeting, Oregon; Duke University;
1988. Worcester Polytechnic Institute; University of Sydney, Australia; I chaired a session and gave a talk at the Tenth International Congress on Rheology, Sydney, Australia;
1989. Institute for Mathematics and its Applications, University of Minnesota;
1991. University of Stuttgart, Germany; University of Bayreuth, Germany; University of California-Davis; University of Minnesota, Minneapolis; American Physical Society Division of Fluid Dynamics 44th Annual Meeting, Arizona.
1992. University of California-Berkeley; Pennsylvania State University; American Physical Society Division of Fluid Dynamics 45th Annual Meeting, Florida.
1993. Mississippi State Annual Conference on Differential Equations and Computational Simulations; University of Illinois-Chicago Circle; Northwestern University; University of Bristol, England; University of Birmingham, England; University of Manchester, England; University of Newcastle-upon-Tyne, England; Workshop on Perturbation Methods in Physical Mathematics, Rensselaer Polytechnic Institute; Minisymposium on "Two-Fluid Flows and Interfacial Instabilities" (co-organizer) at the Society for Industrial and Applied Mathematics 1993 Annual Meeting, Philadelphia; Society of Rheology 65th Annual Meeting, Boston; Shell Laboratories, Amsterdam, The Netherlands; Technical University of Delft, The Netherlands; The University of Utrecht, The Netherlands; Annual Meeting of the American Institute of Chemical Engineers, St. Louis; American Physical Society Division of Fluid Dynamics 46th Annual Meeting, New Mexico; The Benjamin Levich Institute for Physico-Chemical Hydrodynamics, City College of the City University of New York; Courant Institute, New York University; New Jersey Institute of Technology;
1994. Institute for Theoretical Dynamics, University of California-Davis; Dept. of Chemical Engineering, University of California-Berkeley; Dept. of Chemical Engineering, Stanford University; Dept. of Mathematics, Hokkaido University, Sapporo, Japan; Japan Atomic Energy Research Institute, Japan; Research Institute for Mathematical Sciences, University of Kyoto, Japan; Dept. of Physical Oceanography, Woods Hole Oceanographic Institution, MA; Dept. of Chemical Engineering, University of Notre Dame, IN; Society of Rheology 66th Annual Meeting, Philadelphia, PA; American Physical Society Division of Fluid Dynamics 47th Annual Meeting, Atlanta, GA.
1995. Department of Physical Oceanography, Woods Hole Oceanographic Institution, Woods Hole, MA; AMS-IMS-SIAM Joint Summer Research Conference on Multi-Fluid Flows and Interfacial Instabilities (organizer), Seattle, WA July 23-27, 1995; Women in Mathematics at Virginia Tech, October 16-19 (co-organizer); Minisymposium on "Stability and bifurcation in two-fluid viscous flows" (co-organizer) at the Society for Industrial and Applied Mathematics 1995 Annual Meeting, Charlotte NC; Minisymposium on "Modeling and analysis of oceanographic problems" (organizer) at the Society for Industrial

and Applied Mathematics 1995 Annual Meeting, Charlotte NC; Minisymposium on "Modeling and simulation of viscoelastic flows" (organizer) at the Society for Industrial and Applied Mathematics 1995 Annual Meeting, Charlotte NC; American Physical Society Division of Fluid Dynamics 48th Annual Meeting, Irvine CA, a Session Chair for "Convection and Buoyancy".

1996. The Isaac Newton Institute for Mathematical Sciences, University of Cambridge; Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK; Department of Mathematical Sciences, University of the West of England; Institute for Theoretical Physics, University of Bayreuth, Germany; Center for Nonlinear Phenomena and Complex Systems, Free University of Brussels, Belgium; Department of Mathematics, University of Manchester; School of Mathematics, University of Birmingham; Dept. of Mathematics, Hokkaido University, Japan; Dept. of Physics, University of Tokyo; Dept. of Mathematics, University of Kyoto; Dept. of Mathematics, New Jersey Institute of Technology; American Physical Society Division of Fluid Dynamics 49th Annual Meeting, Syracuse NY; Dept. of Mathematics, University of Alabama, Tuscaloosa;
1997. Dept. of Mathematics, Naval Academy, Annapolis, MD; Society of Rheology Annual Meeting, Galveston, TX; Fourth Society for Industrial and Applied Mathematics Conference on Applications of Dynamical Systems, Snowbird, UT; Dept. of Mathematics, Clemson Univeristy, SC; American Physical Society Division of Fluid Dynamics 50th Annual Meeting, Berkeley, CA;
1998. Thirteenth U.S. National Congress of Applied Mechanics, June 21-26, University of Florida, FL; American Institute of Chemical Engineers Annual Meeting, Miami Beach, FL, Nov. 15-20, Chair and presenter for session [01J04] 'Fundamental Research in Fluid Mechanics: Stability and Non-Linear Hydrodynamics', lecture format in session 01J03 'Fundamental Research in Fluid Mechanics: Non-Newtonian Flows', poster format for session 01J07 'Fundamental Research in Fluid Mechanics: Poster Session - General Papers in Fluid Mechanics'; American Physical Society Division of Fluid Dynamics 51st Annual Meeting, Philadelphia, PA, Nov. 21-24, also Chair of session "Non-Newtonian Flows", 24 November 1998.
1999. Naval Research Laboratory, Washington DC, April 14. Minisymposium on 'Advances in the Applications of Mathematics and Computation in Chemical Engineering', co-chaired with Ashish Gupta, SIAM Annual Meeting, Atlanta, GA May 11-15. Laboratoire de Modelisation en Mecanique, Universite Pierre et Marie Curie (Paris VI), France; LadHyX, Ecole Polytechnique, Palaiseau, France,; Departement de Mathematiques, Universite de Paris Sud, Orsay, France; Annual Meeting of the American Society of Chemical Engineers, Dallas, TX, Oct 31- Nov 5. Annual Meeting of the American Physical Society Division of Fluid Dynamics, New Orleans, Nov. 21-23.
2000. Mathematics Department, Louisiana State University, Baton Rouge, LA. Chaired a session at the Concurrent Computing Laboratory for Materials Simulations Mardi Gras conference on Materials Design: Experimental and Computational Challenges, March 2, 2000. ASME Fourth International Symposium on Numerical Methods for Multiphase Flow at the 2000 ASME Fluids Engineering Division Summer Meeting in BOSTON, MA, USA June 11-15, 2000, speaker and session chair. SIAM Annual Meeting, Puerto Rico, July 12. 20th International Congress on Theoretical and Applied Mechanics, Lecture Session on Drops and Bubbles, Chicago Marriott, August 27- Sep 2. AIChE Annual Meeting, Los Angeles, CA, Nov 12-17, speaker and session chair. American Physical Society Division of Fluid Dynamics Annual Meeting, Nov.21-23.
2001. Society of Rheology 72nd Annual Meeting, Hilton Head SC. Dept of Mathematics and Mech. Eng., University of Pittsburgh, PA. Center for Applied Scientific Computing, Lawrence Livermore National Laboratory, Livermore, CA. Department of Chemical Engineering, Washington University at St Louis, MO. Irwin Schrodinger Institute, University of Vienna, Austria.
2003. The Mohs Lectures by Placon. Rheology Research Center, University of Wisconsin, Madison, Oct 9-10, 2003. American Physical Society Division of Fluid Dynamics Annual Meeting, East Rutherford, NJ, Nov. 22-24.
2004. American Physical Society Division of Fluid Dynamics Annual Meeting, Seattle, WA Nov. 21-23. Department of Mechanical Engineering, University of Delaware, Dec. 3.
2005. SIAM Computational Science in Engineering annual meeting, Orlando, Fl, CP16 Session on viscoelastic flows, chair and speaker, Feb 13. British Petroleum Institute and the Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK, July 3.
2006. Virginia Tech Deans' Forum on Energy Security and Sustainability, poster presentation, Oct 16. Amer-

ican Physical Society Division of Fluid Dynamics Annual Meeting, Tampa, FL, Nov 19-21.

2007. Virginia Bioinformatics Institute, Feb.;79th Annual Meeting of The Society of Rheology, Salt Lake City, UT, Oct 7-11, 2007.

2008. Department of Chemical Engineering, Katholieke Universiteit, Leuven, Belgium, April 8. Department of Chemical Engineering, Technical University, Lyngby, Denmark, June 4. The XVth International Congress on Rheology, and The Society of Rheology 80th Annual Meeting, Monterey,CA, oral presentation, Aug 3-8, 2008. American Physical Society Division of Fluid Dynamics Annual Meeting Nov 2008. Fall Fluid Mechanics Symposium, The Inn, Virginia Tech, Nov 13, 2008.

2009. Department of Mathematics, University of Savoie, Chambery, France. March 12, 2009. Laboratoire de spectrométrie physique, Université Joseph Fourier Grenoble I, March 13, 2009. IMA 2009 Program Thematic Workshop on Flowing Complex Fluids: Rheological Measurements and Constitutive Modeling, September 14-18, 2009, poster presentation on 'Influence of viscoelasticity on drop deformation in shear'. Society of Rheology Annual Meeting, Madison, WI, Oct. 2009, oral and poster presentations. Department of Mathematics Math Club presentation, University of Minnesota, Minneapolis MN, Nov 19, 2009. Department of Mathematics Women in Mathematics presentation, University of Minnesota Minneapolis MN, Oct 2009. The IMA 2009 Program Thematic Workshop on Flowing Complex Fluids: Fluid Mechanics-Interaction of Microstructure and Flow October 12-16, 2009, poster presentation titled 'The response of a hydrophobic superparamagnetic ferrofluid droplet suspended in a viscous fluid in a uniform magnetic field: the influence of microstructure on interfacial tension'. American Physical Society Division of Fluid Dynamics Annual Meeting, Minneapolis, MN Nov. 22-24,2009. Seminar in the Department of Chemical Engineering and Materials Science, U. Minnesota, Minneapolis, MN, Nov. 2009.

2010. Colloquium in the Dept of Mathematical Sciences, New Jersey Institute of Technology, Newark, NJ, 1/22/2010. Colloquium in the Dept of Mechanical and Industrial Engineering, New Jersey Institute of Technology, Newark, NJ, 2/3/2010. Seminar, Department of Chemical Engineering, Katholieke Universiteit Leuven, Belgium, March 23,2010. ACC Interdisciplinary Forum for Discovery in the Life Sciences, 10/3/2010-10/5/2010. Society of Rheology Annual Meeting 10/27/2010-10/29/2010, Santa Fe, NM. Virginia Tech Fall Fluid Mechanics Conference, 11/11/2010, The Inn, Virginia Tech. 63rd Annual Meeting of the American Physical Society Division of Fluid Dynamics, 11/21/2010-11/23/2010, Long Beach, CA.

2011. 7th International Congress on Industrial and Applied Mathematics - ICIAM 2011, July 18-22, Vancouver,Canada. 83rd Society of Rheology Annual Meeting, Oct 9-13, Cleveland,OH. 64th Annual Meeting of the APS Division of Fluid Dynamics, Baltimore, MD, Nov 20-22,2011.

2012. Applied Interdisciplinary Mathematics seminar, Dept of Mathematics, U. Michigan, Ann Arbor, followed by SIAM Student Chapter question session, 3/9/2012. Laboratoire Jean Kuntzmann, Grenoble, France, seminar, Modèles et Algorithmes Déterministes: EDP-MOISE, 5/29/2012. American Physical Society Division of Fluid Dynamics 65th Annual Meeting, 11/18-20/2012.

2013. Joint Mathematics Meeting, San Diego, CA, 1/9/2013-1/12/2013, co-chaired and presented at the AMS Session on Waves, Fluid Dynamics and Heat Transfer. Society of Rheology 84th Annual Meeting, Pasadena, CA, 02/10/13- 02/15/13. Society of Rheology 85th Annual Meeting, Montreal, Canada, Oct.13-17, 2013. 66th Annual Meeting of the American Physical Society Division of Fluid Dynamics, 11/24/2013-11/26/2013, Pittsburgh, PA. Virginia Tech Fall Fluid Mechanics Symposium, Nov.21, 2013. The Inn at Virginia Tech.

2014. Aspen Center for Physics, Winter Conference on Biophysics, Jan 27-Feb 1, 2014. Poster presentation, session chair, on organizing committee. SIAM Annual Meeting, Chicago, IL, July 8, 2014. Invited colloquium, Dept of Mathematical Sciences, New Jersey Institute of Technology, NJ, 10/ 10/2014.

2015. PDE seminar, Ohio State Math dept, 1/14/2015

2016. SIAM Annual Meeting, July 11-15, Boston MA. Oral presentation in CP12 on 7/13/2016. APS DFD Annual Meeting, Nov 19-22, Portland OR. Oral presentation.

2017. Society of Rheology 88th Annual Meeting, Feb 12 to 16, 2017, Tampa FL, session on Non-Newtonian Fluid Mechanics and Instabilities, talk titled "Stability of shear banded flow for a viscoelastic constitutive model with thixotropic yield stress behavior". Applied Mathematics Colloquium speaker, New Jersey Institute of Technology, Dept of Mathematical Science, 3 March 2017. Guest lecture Capstone class

2/28/17, NJIT. Seminar at the Department of Mathematics, Simon Fraser University, Burnaby BC Canada, May 10, 2017. Oral Presentation at Pacific Institute for the Mathematical Sciences, Complex Fluids and Flows in Industry and Nature workshop, Canada, 6/12/2017- 6/15/2017. Invited peaker, Procter & Gamble Technical Division, Cincinnati OH, August 3,2017.

Other Conferences/Workshops Attended

Faculty Development Institute Workshop on the use of Macintosh for instruction, May 22 - 26, 1995, Virginia Tech; Summer School for Geophysical Fluid Dynamics, Woods Hole Oceanographic Institution, Woods Hole MA, June 21 - 23, 1995; Institute for Mathematics and its Applications, U. of Minnesota, September 17-24, 1995, invited participant for the Workshop on Composite Materials; Theoretical Response to the Experimental Dilemmas for Dynamics of Complex Fluids, March 14, 1996; The Royal Society / Unilever Indo - UK Forum on Dynamics of Complex Fluids, Cavendish Laboratory, Cambridge, June 1996. Invited for the May 11-15, 1998, workshop on Pattern Formation at the Institute for Mathematics and Its Applications, U. Minnesota. Faculty Development Institute Workshop on the use of technology in instruction (use of Microsoft Word for basic web authoring), June 11-12, 1998. Faculty Development Institute Workshop on the use of technology in instruction 2001. Faculty Development Institute Workshop on improving writing and presentations, 2004. AIChE annual meeting, 2005. APS-DFD annual meeting, 2005. Faculty Development Institute Workshop spring 2007. Faculty Development Institute Workshop on 'The New Age of Interdisciplinary Projects: More Bang for the Buck' track T1, July 15-17,2008. Faculty Development Institute Workshop on Scholar, 2009. Orientation meeting for VT-PREP and VT-IMSD, September 2009. Future Faculty Initiative Workshop, 1/11/2010. VT-IMSD (Virginia Tech - Initiative for Maximizing Student Development program) Workshop on Best Practices in Mentoring Underrepresented Minorities in Biomedical Research, 4/22/2010-4/23/2010, Blacksburg VA. Virginia Tech Faculty Development Workshop Track C3, 6/1/2010-6/3/2010. VT-IMSD and VT-PREP Meeting, Graduate Life Center, Virginia Tech, 8/17/2010. Gerris Users' Meeting, Université Pierre et Marie Curie, June, 2011. NLI workshop ARC: Introduction to ARC Systems and User Environment, 1/29/2015. Title IX and Sexual Abuse of Minors 3/2/2015. Canvas: Exploring Canvas, 7/16/2015. NLI Session "Canvas: Scholar to Canvas Migration", 9 Jan 2017.

PROFESSIONAL SERVICE

• I have refereed articles for publication in the following journals:

Acta Mechanica, American Institute for Chemical Engineers Journal, ASME Journal of Heat Transfer, The Canadian Journal of Chemical Engineering, Canadian Journal of Physics, Chemical Engineering Communications, Computers and Fluids, European Journal of Mechanics B/Fluids, European Journal of Applied Mathematics, Fluid Dynamics Research, IMA Journal of Applied Mathematics, International Journal of Heat and Fluid Flow, International Journal of Multiphase Flow, Journal of Applied Mathematics and Physics (ZAMP), Journal of Applied Mechanics, Journal of Computational Physics, Journal of Engineering Mathematics, Journal of Fluid Mechanics, Journal of Mathematical Analysis and Applications, Journal of Non-Newtonian Fluid Mechanics, Journal of Physics A, Journal of Physics D: Applied Physics, Journal of Rheology, Mathematical and Computer Modeling, Mathematical Reviews, Nonlinearity, Proceedings A of The Royal Society, Philosophical Transactions of the Royal Society Series A, Physica D, Physics of Fluids, Physics Letters A, Physical Review E, Physical Review Letters, Rheologica Acta, SIAM Journal of Applied Mathematics, SIAM Journal of Scientific Computing.

• I have refereed proposals for research grants for the following organizations:

Air Force Office for Scientific Research, American Chemical Society - Petroleum Research Fund, Australian Research Council, Chilean Research Council (CONICYT), EPSRC (U.K.), NASA, National Science Foundation Division of Mathematical Sciences (Applied Mathematics), NSF Division of Engineering (Chemical and Transport Systems), Office of Naval Research, S. Carolina EPSCoR, U.S. Israel Binational Science Foundation, National Science Foundation Directorate of Engineering's Chemical, Bioengineering, Environmental, and Transport Systems (CBET).

• I have taken part in the organization of the following conferences:

1. I organized (with Demetrios Papageorgiou, New Jersey Institute of Technology) a Minisymposium titled "Interfacial Instabilities in Two-Phase Flows" at the Society for Industrial and Applied Mathematics 1993 Annual Meeting, July 15, Philadelphia.

2. I was invited to organize a session on the mathematical theory of double diffusion, at the American Geophysical Union's Chapman Conference on Double Diffusion, Arizona State University, Nov. 3-6, 1993.
3. I am on the organizing committee for the 1995 Annual Meeting of the Society of Natural Philosophy, April 7-9, titled Innovations in the Analysis of Nonlinear Phenomena in Continuum Mechanics, held at Virginia Tech.
4. I have been invited to organize two two-hour Minisymposia on Instabilities in Two-Fluid Flows at the International Conference on Nonlinear Dynamics and Pattern Formation in the Natural Environment, at Noordwijkerhout, The Netherlands, July 4-7, 1994.
5. I am organizer of the 1995 AMS-IMS-SIAM Joint Summer Resesarch Conferences in the Mathematical Sciences, titled "Analysis of Multi-Fluid Flows and Interfacial Instabilities", July 23- 27, University of Washington, Seattle.
6. I am co-chair with John Rossi for "Women in Mathematics at Virginia Tech – Past, Present and Future", October 16 - 20, 1995, in the Department of Mathematics, V. P. I. & S. U.
7. I am organizer of three minisymposia at the Society for Industrial and Applied Mathematics Annual Meeting, October 23-26, 1995, Charlotte, NC. The titles are "Mathematical Problems in Oceanography", "Analysis of Viscoelastic Flows" and "Analysis of Two-Fluid Flows".
8. I am on the Scientific Committee for the International Union of Theoretical and Applied Mechanics (IUTAM) Symposium on Nonlinear Wave Behavior in Multi-phase Flow at the University of Notre Dame, organized by H. C. Chang and M. McCready during July 7-9, 1999.
9. I am Chair of session [01J04] 'Fundamental Research in Fluid Mechanics: Stability and Non-Linear Hydrodynamics', 1998 Annual Meeting of the American Institute of Chemical Engineers, Nov. 15-20, 1998, Miami Beach, FL.
10. I am co-organizer of the NSF-CBMS regional conference on 'Mathematical Analysis of Viscoelastic Flows', June 19-23, 1999, at the University of Delaware.
11. I organized a Minisymposium titled 'Advances in Applied Mathematics and Computation in Chemical Engineering' with Ashish Gupta (SUNY-Buffalo) at the SIAM Annual Meeting, May 15, 1999, Atlanta, GA.
12. I am chair of the Numerical Analysis session at the Year 2000 Annual Meeting of the American Institute of Chemical Engineers, Los Angeles.
13. I am co-organizer of the conference titled 'New Approaches to Continuum Mechanics: Mathematical Analysis, Numerical Simulations and Their Interactions with Physical Experiments.' Oct.15-16, 2000, Dept of Mathematics, Virginia Tech.
14. I am on the Program Committee for the 72nd Annual Meeting of the Society of Rheology, Westin Resort, Hilton Head Island, South Carolina, Feb. 11-15, 2001. I chaired sessions on 'Non-Newtonian Fluid Dynamics and Flow Stability' over two days, and gave an oral presentation.
15. I am Chair of the Organizing Committee for the Topical Conference on Computing and Simulations at Work (Fundamental Advances in Engineering Computing and Simulations), co-sponsored with SIAM, at the 2003 Annual Meeting of the American Institute of Chemical Engineers, San Francisco CA.
16. Organizer of Symposium on Multicomponent and Multiphase Fluid Dynamics, 14th U.S. National Congress of Theoretical and Applied Mechanics, Blacksburg, VA, June 23-28, 2002.
17. Organizer of minisymposium on 'Modeling and Simulation of Viscoelastic Flows', Dec 10, 2007, SIAM-APDE Annual Conference.
18. I am on the International Scientific Organizing Committee for the International Conference on Multiphase Flow, May 30-June 4, 2010, Tampa FL.(ICMF-2010)
    http://conferences.dce.ufl.edu/ICMF2010/default.aspx?page=653
19. Co-organizer with S. Afkhami for the minisymposium titled 'Advances in Modeling and Simulation of Non-Newtonian Materials', 7th International Congress on Industrial and Applied Mathematics - ICIAM 2011, July 18-22, 2011, Vancouver, Canada.
20. Technical Program Committe member for the Society of Rheology Annual Meeting, Feb. 2013, co-organizer with A. Khair (Carnegie Mellon) for the sessions on Electric and Magnetic Field Effects in Rheology.

21. Co-organizer of 'Active Fluids: Bridging Complex Fluids and Biofluids'. Jan 27-Feb 1, 2014. Organizing committee: Arezoo Ardekani (Notre Dame), Yuriko Renardy (Virginia Tech), Jun Zhang (NYU), Eric Lauga (Cambridge), David Saintillan (U. California, San Diego). I also introduced the speaker at the Maggie and Nick DeWolf Foundation Public Lecture, Wheeler Opera House, Aspen, CO, on Feb 29, 2014. We are on the Aspen Center for Physics Winter Conference 2014 Website http://www.aspenphys.org/physicists/proposals/winterproposals/index.html

• I have given the following services to national societies:

1. I am a member of the Executive Committee of the Computing and Systems Technology Division of the American Institute of Chemical Engineers for 2001-2002. Member of National Programming Committee for CAST (Computing and Systems Technology Division of the AIChE) for 2001-2003.
2. I am the area 10d (Applied Mathematics, Computing and Systems Technology Division) coordinator for the Annual Meeting of the American Institute of Chemical Engineers, 2003, San Francisco.
3. American Mathematical Society Centennial Fellowship Selection Committee, July 1 2002-June 30, 2004. The AMS Centennial Research Fellowship Program makes awards annually to outstanding young mathematicians to help further their careers in research.
4. American Physical Society Division of Fluid Dynamics, Frenkiel Prize selection committee 2005-2007. This committee selects the best paper published in the Physics of Fluids journal during each year, written by authors all of whom are under 40 years old.
5. APS DFD Andreas Acrivos Award Committee 2005.
6. I am on the 2006 selection committee for the Richard C. DiPrima Prize. The prize will be awarded at the SIAM Annual Meeting, scheduled for July 10-14, 2006, in Boston, Massachusetts. The winner will receive a certificate and $1,000. The DiPrima Prize is awarded every two years to a young scientist who has done outstanding research in applied mathematics (defined as those topics covered by SIAM journals) and who has completed his/her doctoral dissertation and all other requirements for his/her doctorate during the period running from three years prior to the award date to one year prior to the award date. Selection is based on the dissertations of the candidates.
7. I am one of three judges for the winner of the video competition, Gallery of Fluid Motions, at the Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Nov 20-22, 2005, Chicago, IL.
8. I am a member of the Committee of Visitors for the National Science Foundation Division of Mathematical Sciences 2010 report, April 26-28, 2010. The report is at http://www.nsf.gov/mps/advisory/covdocs/DMScov_2010.pdf and submitted to H. Edward Seidel, Acting Assistant Director, Mathematical and Physical Sciences.
9. I am on the Fellowship Selection Committee for the American Physical Society Division of Fluid Dynamics, 2011-2012.
10. I am on the Stanley Corrsin Award Selection Committee for the American Physical Society division of Fluid Dynamics, 2014-2016. I was ad-hoc Chair in 2014 when the chair of the selection committee had a conflict of interest.
11. I am on the Committee of Visitors for the Division of Mathematical Sciences 2016. The report is online at NSF. The COV submitted its report on 23 Nov 2016.
12. I am on the AWM-SIAM Sonia Kovalevsky Lecture Selection Committee 2017-2019.
13.

• I have taken part in the following national panel reviews:

1. National Science Foundation Division of Chemical and Transport Systems panel 1998, 2001. Renamed, Division of Chemical, Bioengineering, Environmental, and Transport Systems (CBET), 1 panel in 2015, 1 panel in 2016.
2. National Science Foundation Division of Mathematical Sciences panel review. 1998, 1999, 2 in 2000. 1 panel review in 2002, 1 in 2003; 1 on 2005; 1 in 2006. 1 in 2008; 1 in 2009. 2 in 2010. 1 in 2013. 2 panels in 2014.
3. NASA Space Architect Team review panel 2004.
4. Member of NSF site visit panel for the Institute for Pure and Applied Mathematics (IPAM), UCLA, 2004. 2 site visits for the VIGRE program 2001. Member of NSF site visit panel for the Institute for Mathematics and Its Applications (IMA), University of Minnesota, 2004.
5. CONICYT, government of Chile.2013.

INSTITUTIONAL SERVICE

• University service. 2000-2003. Materials Cross-Cutting Initiative Committee.

• University service. 1998, May 7, Virginia Tech Packard Foundation Advisory Committee, under Tom Brobson, Associate Director of Corporate & Foundation Relations, and Eugene Brown. The David and Lucille Packard Foundation award is open to applicants from 50 selected universities. Virginia Tech was selected this year and also the next. Two applicants are to be forwarded from the university, making a total of 100 applicants, out of whom 24 will be chosen. I was part of approximately ten members of a panel that met to select two applicants out of 19, to forward to President Torgerson.

• University service. I am on the panel for the ASPIRES (A Support Program for Innovative Research Strategies) program for 1998/99. I reviewed approximately 25 proposals.

• College service. I am on the College of Arts and Sciences Honorifics Committee for 1999 - 2003.

• I have served on the following departmental committees:

1987-1988: Service Committee, Computing Committee.

1988-1989: Service Committee, Computing Committee.

1989-1990: Computing Committee.

1990-1991: Computing Committee, Search Committee.

1991-1992: Computing Committee, Personnel Committee.

1992-1993: Computing Committee, Personnel Committee, Upper Division Service.

1994-1995: Computing Committee.

1995-1996: Chair of Departmental Colloquia Committee, Centennial Committee, Mentor to Midori Kobayashi for fall 1995.

1996-1997: Search Committee for a senior numerical analyst, Search Committee for an Exceptional Opportunities Position, Chair of Departmental Colloquia Committee, Mentor for Jeff Connor, Budget and Planning Committee, Computational Resources Committee, Women's Career Day Committee.

1997-1998: Search Committee for an Exceptional Opportunities Position, Departmental Colloquia Committee, Undergraduate Advisor (Freshmen, Traditional option), GTA Mentor program, Search Committee for a senior numerical analyst, Computational Resources committee. I attended the Fall Advisors' Workshop 1997.

1998-1999: Treasurer of Colloquium Committee, Search Committee for a Senior Numerical Analyst, Computational Resources Committee, Undergraduate Sophomore Advisor, Mentor for GTA.

1999-2000: Search Committee for Numerical/Optimization.

2000-2001: Math Emporium Oversight Committee, Search Committee for Analyst, Search Committee for Numerical Analysis.

2001-2002: Teaching Committee, Advisor for math major traditional option, Search Committee for Numerical Analysis, Travel Committee.

2002-2003: Teaching Committee, Advisor for math major traditional option, Search Committee for Numerical Analysis.

2003-2004: Departmental postdoctoral research associate search committee. Computational science tenure-track position search committee. Advisor for math major traditional option.

2007-2009: Chair of the PDE prelimary examination committee.

2008-2009: Career Day Committee, for assisting with the Women in Mathematics: Career Day, Friday Nov 21, 2008. Joined the Organization of Women Faculty.

2008-2009: College of Science Scholarship Committee.

2009-2010: sabbatical. University Commencement ceremony, led students into the ceremony area for the College of Science, 5/14/2010.

2010-2011: Freshman advisor, traditional option for mathematics majors. Instructor Evaluation committee. Chair of selection committee for the Patricia Caldwell Postdoctoral Fellowship. Chair of PDE prelim committee.

2011-2012: Advisor, traditional option for mathematics majors. Chair of PDE prelim committee.

2012-2013: Personnel Committee; Advisor for traditional option for math majors; Committee Chair for selection of the Caldwell Postdoctoral Fellowship 2013.

2013-2014: Advisor for traditional option for math majors; Cosmology Search Committee for the Physics Department, Instructor Evaluation, Graduate Program, PDE Prelim Committee chair.

2014-2015: Advisor for traditional option for math majors. Graduate Program Committee. Patricia Caldwell Postdoctoral Fellowship Search Committee.

2015-2016: Advisor for traditional option for math majors. Graduate Program Committee. Instructor evaluation committee. PDE Prelim Committee.

2017-2018: Advisor for traditional option for math majors. Graduate Program Committee. PDE Prelim Committee, COS Honorifics Committee.

• I have served on Ph.D. committees and oral prelim exams in the departments of Mathematics, Electrical Engineering, and Engineering Science and Mechanics.

The candidates are:

Chul-Jong Chung, Electrical Engineering, Ph. D. 1992.

Jeong Kim, Mathematics, Ph.D. 1993.

Kuen Tat Teh, Engineering Science and Mechanics, prelim exam 1992, Ph. d. 1993.

Filis Triantaphyllos Kokkinos, Engineering Science and Mechanics Ph. d. 1995.

Yanhong Zhang, Engineering Science and Mechanics, prelim exam 1992.

Fang-Lan Liu, Mathematics, Ph. D. 1993.

Sungsoo Na, Engineering Science and Mechanics, Ph. D. 1997.

External examiner for Hamid Zangeneh, Ph.D. Mathematics, The University of British Columbia, 1993.

Daniel Purdy, Electrical Engineering, Ph.D. 1995.

Yi-Chwan Chao, Engineering Science and Mechanics, M Sc. 1995.

Byung K. Ahn, Engineering Science and Mechanics. Ph. D. 1997.

Committee member for the Ph. D. program of John Gilchrist, Department of Mathematics, New Jersey Institute of Technology, 1996-1997. I was invited to NJIT for his PhD proposal (1996) and final presentation (April 1998).

Sandie Klute, Engineering Science and Mechanics, PhD 1999.

Thomas Hagen, Mathematics, PhD 1998.

Adel Benhaj Jilani, Engineering Science and Mechanics, PhD 1999.

Jaber Almedeij, Civil and Environmental Engineering, PhD. 2001

Marc R. Schultz, Engineering Science and Mechanics, PhD 2002/3.

Tomoya Ochinero, Engineering Science and Mechanics, PhD 2002.

Kevin Moorhouse, Engineering Science and Mechanics, 2005 PhD.

Mary Ann Drumright-Clarke, Mathematics, PhD 2002. Numerical simulations that characterize the effects of surfactant on droplets in shear flow. Advisor: Y. Renardy. Currently associate professor, Department of Mathematics, West Virginia University.

Marc Schultz, Engineering Science and Mechanics, PhD 2003.

Minh A. Nguyen, Electrical and Computer Engineering, PhD 2005.

Tirivanhu Chinyoka, Mathematics, PhD program 2002–2004. Advisors: Yuriko and Michael Renardy. Title: Numerical simulation of stratified flows and droplet deformation in 2D shear flow of Newtonian and viscoelastic fluids. Currently tenured Lecturer, Dept of Mathematics and Applied Mathematics, at University of Cape Town, South Africa.

Fernando Goncalves, Mechanical Engineering, PhD prelim 2002.

Dongsong Zeng, ECE PhD, Northern Virginia, 2005.

Mohamed Elsayed, Civil and Environmental Engineering, PhD. 2004.

Nassissie Fekadu, Electrical Engineering, Northern Virginia, PhD program 2007-ongoing.

Toufik Laadj, Mathematics, PhD program 2007-2011.

Gregorio Velez, Macromolecular Science and Engineering, PhD 2006-2012.

Ahmed Kaffel, Mathematics, PhD program 2008-2011.

Terry Vogler, Electrical and Computer Engineering, PhD 2010.

Mohamed Ben Romdhane, Mathematics, PhD program 2008-2010.

Xiaojun Wang, Mathematics, PhD program 2008-2011.

Idir Mechai, Mathematics, PhD program 2008-2010.

Xu Zhang, Mathematics, PhD program 2011.

Nabil Chaabane, PhD program 2011, advisor S. Adjerid.

Holly Grant, PhD program, begun 2012, advisor: Yuriko Renardy.

Ryan Nikin-Beers, Masters 2014, Ph.D. 2014- advisor S. Ciupe.(Math)
Kihyo Moon, Ph.D. 2013-2016, advisor S Adjerid.(Math)
Taige Wang, Ph.D. 2016, Advisor M. Renardy.
Brandon Dillon, Ph.D. program from 2017, Advisor Kyle Strom, Civil and Environmental Engineering.

• With the change-over in the operating system of the computers in the Mathematics Department from VMS to UNIX during September 1992, I have organized a lesson on the "Introduction to the UNIX Operating System", given by an Instructor from the Computing Center, tailor-made to the needs of the Mathematics department.
• College service. I am on the College of Science Honorifics Committee for 2017-2018.

Outreach

• June 1997: Half-hour Magic Show presentation based on mathematical ideas, for a Second Grade class from Gilbert Linkous Elementary School, visiting the Mathematics Department.
• July 1997: One-hour presentation of my research to a group of 25 women who will be taking calculus in high school the following year, in a summer camp called "C Tech^2", run by Prof. Bev Watford, College of Engineering, Virginia Tech.
• Invited speaker at annual Pi Mu Epsilon banquet April 7, 1999. Virginia Tech has a chapter of Pi Mu Epsilon, a national organization for undergraduates whose purpose is the promotion of scholarly activity in mathematics. Outstanding math majors may be nominated for membership in this organization in their junior or senior years.
• KidsTech volunteer, (i) April 6, 2013,
http://ktu.vbi.vt.edu/mainPageDiabetes.php.
(ii) http://kidstechuniversity.vbi.vt.edu/kidstech/past-programs,
January 25, 2014.
• volunteered at my student Holly Grant's exhibit, 'Time for Slime', Virginia Science Festival, 10/4/2014. http://virginiasciencefestival.org
• KidsTech volunteer, 3/21/2015.

Teaching

• I have taught the following undergraduate courses: Precalculus, Calculus sequence, College Algebra, Linear Algebra, Finite Math, Operational Methods for Engineers, Fourier Series and Partial Differential Equations (2 semester sequence), Multivariable Calculus, and the following graduate courses: Matrix Theory (2 semester sequence), Principles and Techniques of Applied Mathematics, Mathematical Methods for Engineers (2 semester sequence), Applied PDE (2 semester sequence leading to a Ph.D. preliminary examination). Teaching evaluations are available upon request.
• **Technology**: I have incorporated into my teaching the material from the Faculty Development Institute Workshop on the use of Macintosh for instruction, May 22 - 26, 1995, and the Faculty Development Institute Workshop on the use of technology in instruction (use of Microsoft Word for basic web authoring), June 11-12, 1998, Virginia Tech.
• **Course Development**: I have developed an interdisciplinary course for graduate students in mathematics and chemical engineering, joint with M. Renardy (Math), Don Baird (Chem. E.), Antony Beris (Chem. E, University of Delaware), and David Olagunju (Math, University of Delaware). This was delivered at the Northern Virginia Campus during Summer session II of 1998 as Math 5984, Instabilities in Polymeric Flows, attended by 8 scientists from industry as well as over 10 students. Plans are under way to repeat this course.
• **Course Development**: I have developed a graduate course titled 'Two-Fluid Dynamics'. This is Math 5415, delivered during the Fall 1998.
• **Undergraduate Research**:

1. I supervised an Undergraduate Research Project for Christopher G. Stoltz (double major in Mathematics and Chemical Engineering), Math 4994 during Summer Session II 1998. He worked on pattern formation and spatiotemporal pattern formation in double-layer convection. This resulted in a conference proceedings paper and one paper published in the International Journal of Multiphase Flow. He is a Ph.D. (Chemical Engineering, Wisconsin) and working at Procter and Gamble.

2. 2013-2015 academic year: John Smith, Mathematics major, finished a Research Experience for undergraduates during the spring semester of 2015. He entered the graduate program in Statistics at Virginia Tech.

• **Graduate Students**:

1. Morrakot Raweewan (M. Sc. 1999 'Viscosity and density stratification in vertical plane Poiseuille flow', presentation Nov. 30, 1999.).
2. Mary Ann Drumright-Clarke (M. Sc 1999). During the Second Summer Session of 1997, Mary Ann Drumright-Clarke worked on modeling co-extruded viscoelastic flow. This resulted in a published article for the Journal of Non-Newtonian Fluid Mechanics, joint with experimentalists at Washington University at St Louis. For her Masters presentation, she modelled a specific process for the production of fiber optic cable at Siemens-Corning in Hickory, NC.
3. Mary Ann Clarke, PhD 2002. Numerical simulations that characterize the effects of surfactant on droplets in shear flow. Tenured associate professor, Department of Mathematics, West Virginia University. Moved to (https:// mfix.netl.doe.gov/team_manager/mary-ann-clarke-phd/) Multiphase Flow Research Group, National Energy Technology Laboratory, U.S. Department of Energy.
4. Tiri Chinyoka, PhD December 2004, partially funded by American Chemical Society-Petroleum Research Fund. Current employment: Lecturer (tenured), Department of Mathematics and Applied Mathematics, University of Cape Town, South Africa. Member of Centre for research in Computational and Applied Mechanics, University of Cape Town (CERECAM). He has served as a Vice President of the South African Association for Theoretical and Applied Mechanics (SAAM).
5. Shernita Lee, VT-IMSD program (Initiative for Maximizing Student Development), http://www.apsc.vt.edu/academics/vtimsd/index.html, 3 month rotation with Y. Renardy and Pengtao Yue, 2010.
6. Holly Grant, funded with NSF-DMS 1311707. 2012-2017. Ph.D. 2017.

• **Postdoctoral Research Associates**:

1. Dr Adrian Coward was my postdoctoral research associate under my NSF-CTS grant during the period Oct.1,1994 - Sep.30, 1996; he is now CEO UK & Ireland at Synergy Health PLC.
2. Dr Jie Li was the postdoctoral research associate under the NSF-CTS grant 9612308 during Oct 1, 1997-Sept. 30, 1999. Current position: Lecturer, tenured 2004, Department of Engineering and BP Institute, University of Cambridge, United Kingdom.
3. Dr Damir Khismatullin 2001-2003. Postdoctoral research associate under NSF-CTS 0090381. Current position: Associate Professor, Department of Biomedical Engineering, Tulane University.
4. Shahriar Afkhami, 2007-2009, postdoctoral research associate under NSF-DMS 0456086. Tenured associate professor, Department of Mathematical Sciences, New Jersey Institute of Technology, Newark NJ.
5. Kara Maki, under the National Science Foundation - Association for Women in Mathematics (NSF-AWM) Mentoring Travel Grant to K. Maki (Institute for Mathematics and Its Applications postdoctoral research associate, University of Minnesota) to visit Virginia Tech for 1 month summer, 2010, with appointed mentor Y. Renardy. Tenured associate professor, School of Mathematical Sciences, Rochester Institute of Technology.