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### Publication List

#### Books

1. *Transonic Aerodynamics* (with J. D. Cole), North Holland, 1986. (1989, Russian translation appeared, MIR Publishers, Moscow)

#### Books Edited

1. *Transonic Aerodynamics; Problems in Asymptotic Theory* (L. Pamela Cook ed) SIAM, Philadelphia, 1993.
2. *Nonlinear Problems in Applied Mathematics* (with T. Angell, R. Kleinman, E. Olmstead) SIAM, Philadelphia, 1995.
3. *Mathematics is for Solving Problems* (with V. Rojtbird, M. Tulin) SIAM, Philadelphia, 1996.

#### Publications/Papers

1. The behavior as  $\epsilon \rightarrow 0^+$  of solutions to  $\epsilon \nabla^2 w = \partial w / \partial y$  in  $|y| \leq 1$  for discontinuous boundary data (with G. S. Ludford), *SIAM J. Math. Anal.*, Vol. 2, No. 4, November 1971, 567–594.
2. Corner regions in the asymptotic solution of  $\epsilon \nabla^2 u = \partial u / \partial y$  with reference to MHD duct flow (with G. S. S. Ludford and J. S. Walker), *Proc. Camb. Phil. Soc.*, (1972), Vol. 72, 117–122.
3. The behavior as  $\epsilon \rightarrow 0^+$  of solutions to  $\epsilon \nabla^2 w = \partial w / \partial y$  on the rectangle  $0 \leq x \leq 1$ ,  $|y| = 1$  (with G. S. S. Ludford), *SIAM J. Math. Anal.*, Vol. 4, No. 1, February 1973, 161–184.
4. Resonance in a boundary value problem of singular perturbation type (with W. Eckhaus), *Studies in Appl. Math.*, Vol. 52, No. 2, June 1973, 129–139.
5. Higher-order approximation for free shear layers in almost rigid rotations (with G. S. S. Ludford), *J. Fluid Mech.*, Vol. 69, May 1975, 191–195.
6. A uniqueness proof for a transonic flow problem, *Indiana Univ. Math. J.*, Vol. 27, No. 1, January–February 1978, 51–71. *Errata*, Vol. 28, No. 1, 1979, 189.
7. Lifting-line theory for transonic flow (with J. D. Cole), *SIAM J. Appl. Math.*, Vol. 35, No. 2, September 1978, 209–228.
8. On the solutions of a nerve conduction equation (with J. Bell) *SIAM J. Appl. Math.*, Vol. 35, No. 4, December 1978, 678–688.
9. Lifting-line theory for a swept wing at transonic speeds, *Q. Appl. Math.*, Vol. 37, No. 2, July 1979, 177–202.

10. A model of the nerve action potential (with J. Bell), *Math. Biosciences*, Vol. 46, September 1979, 11–36.
11. Finite span wings at sonic speed (with J. Cole and F. Zeigler), *Mech. Rsch. Comm.* 7 (4), 1980, 253–260.
12. Waves and dispersion relations for hydroelastic systems (with M. Holmes), *SIAM J. Appl. Math.*, Vol. 41, No. 2, October 1981, 271–287.
13. Transonic Aerodynamics (with J. D. Cole) 1986 (see books).
14. The stabilization law for transonic flow (with F. J. Zeigler), *SIAM J. Appl. Math.*, Vol. 46, No. 1, February 1986, 27–48.
15. Two-dimensional choked transonic flow (with J. D. Cole), *ZAMP*, **39**, January, 1988, 1–12.
16. Transonic choking and stabilization for flow about slender bodies (with J. D. Cole), *Mechanics Research Communications*, **15** (4) 1988, pp.213–219.
17. An analysis of the Bird–Deaguiar model for polymer melts (with Calderer and Schleiniger) *J. Non-Newtonian Fluid Mech*, **31** (1989) pp.209–225.
18. Some asymptotic problems of transonic flow theory (with J. D. Cole) *Symposium Transsonicum III*, Springer Verlag, 1989, pp.157–170.
19. Embedded hyperbolic regions in a nonlinear model of viscoelastic flow (with Calderer, Schleiniger) *Progress in Hyperbolic systems: Riemann Problems and Computations 100* (1988) Contemporary Mathematics, W.B. Lindquist (ed), AMS, Providence, RI, 9–20.
20. Composite type, change of type and degeneracy in first order systems with applications to viscoelastic flow (with Schleiniger, Weinacht) in IMA Volumes in Mathematics and its Applications, *Nonlinear Evolution Equations that change type*, **27**, Springer–Verlag, 1990.
21. Transonics and asymptotics in *Asymptotic Analysis and the Numerical Solution of Partial Differential Equations*, (ed. Kaper, Garbey) Dekker, Lecture Notes in Mathematics, **130**, (1991), pp. 145–160.
22. The inlet layer in the flow of viscoelastic fluids (with Schleiniger) in *Journal of Non-Newtonian Fluid Mechanics*, **40** (1991) pp. 307–321.
23. Asymptotic theory of the transonic area rule (with Cole) in *Mathematical Approaches in Hydrodynamics*, (ed. Miloh) SIAM (1991) pp. 481–490.
24. Transonic Aerodynamics: Problems in Asymptotic Theory, 1993 (see books).
25. Secondary flows in cone and plate flow of a viscoelastic fluid (with Olagunju) in *J. Non-Newtonian Fluid Mech.*, **46** (1993) pp. 29–47.
26. Choked wind tunnel flow: asymptotics and numerics, in *Transonic Aerodynamics; Problems in Asymptotic Theory*, (ed. Cook) SIAM, Philadelphia, 1993.
27. Linear Stability analysis of cone and plate flow of an Oldroyd–B fluid (with Olagunju), *J. of Non-Newtonian Fluid Mechanics*, Vol. 47, 1993, pp. 93–105.
28. Viscoelastic fluid flow: critical parameters and asymptotics (with Olagunju and Schleiniger) *Asymptotic and Numerical Methods for PDE's with Critical Parameters*, (ed. Kaper, Garbey) Kluwer (1993) The Netherlands.

29. Some axisymmetric transonic flows, (with Schleiniger), in *Advances in Analytical Methods in Modeling of Aerodynamic Flows*, eds. Walker, Barnett, Smith. AIAA, Washington, D.C., (1994), pp. 173-177.
30. Some problems in transonic aerodynamics, AIAA 95-0476, Jan., 1995, 12 pages (text of invited one-hour presentation, AIAA National Meeting, Reno, Nevada).
31. An unsteady transonic flow (with Cole, Schleiniger) *Applied Sciences Especially Mechanics*, eds. Kreuzer and Mahrenholz, ZAMM, (26), 1996.
32. Transonic flow about a suddenly deflected wedge (with Cole, Schleiniger and Sinha) in *Mathematics is for Solving Problems*, eds. Cook, Roytbird, Tulin, SIAM, Philadelphia, 1996, pp. 133-146.
33. Unsteady Transonic Flow; Flow about a Suddenly Deflected Wedge (with Cole, Schleininger) *AIAA Journal*, Vol.35 # 7 (1997) pp. 1179-1186
34. Computation of an Axisymmetric Nozzle Flow (with Newman, Rimbey, Schleiniger), in *Frontiers of Computational Fluid Dynamics* (eds. Caughey and Hafez), World Scientific Pub., 1998, pp. 57-65.
35. Glancing Shocks (with Cole, Schleiniger), AIAA 98-2688, (text of invited talk AIAA Meeting, Albuquerque, NM, 6/98).
36. A Generalized Monge-Ampere Equation Arising in Compressible Flow (with Newman), in *Monge Ampere Equation: Applications to Geometry and Optimization*, (eds Caffarelli, Millman), Contemporary Mathematics, #226, AMS, Providence, RI, 1999, pp. 149-156.
37. Sonic and Subsonic Axisymmetric Nozzle Flows (with Newman, Rimbey, Schleiniger), *SIAM Journal Applied Mathematics*, **59**, #5, 1999, pp. 1812-1824.
38. Julian D. Cole (an extended technical obituary) (main author, co-authored with Bluman, Flaherty, Kevorkian, Malmuth, O'Malley, Schwendeman and Tulin) *Notices of AMS*, 47(4), pp. 466-473 (2000).
39. Unambiguous Polymer Characterization by Flow-Referenced Capillary Viscometry (with Nwankwo, Schleiniger and Wood), *SIAM J. Appl'd Math.*, 62(5), 2002, pp. 1657-1676.
40. Effect of viscous heating on stability of viscoelastic cone-and-plate flow: Axisymmetric case (with Olagunju and McKinley), *J. Non-Newtonian Fluid Mechanics*, 102(2), Feb. 2002, pp. 321-342.
41. Mathematical Analysis of Viscometric (Polymer) Flow Fields in Capillaries: Taylor Dispersion Revisited, (with Nwankwo, Schleiniger, Wood), *J. Eng. Math.*, 45, pp. 269-282, 2003.
42. Slippage and Migration in Models of Dilute Wormlike Micellar Solutions and Polymeric Fluids (with Rossi) *J. Non-Newtonian Fluid Mechanics* 116, pp. 347-369, 2004.
43. Slippage and migration in Taylor-Couette flow of a model for dilute wormlike- micellar solutions (with Rossi, McKinley) *J. Non-Newtonian Fluid Mechanics* 136, pp. 79-92, 2006.
44. A Network Scission Model for Wormlike Micellar Solutions I: Model Formulation and Homogeneous Flow Predictions, (with McKinley and Vasquez), *J. Non-Newtonian Fluid Mechanics*, 144, pp. 122-139, 2007.
45. Single-equation models for the tear film in a blink cycle: Realistic lid motion (with Heryudono, Braun, Driscoll, and King-Smith), *Mathematical Medicine and Biology*, Oct. 2007.
46. Modeling the inhomogeneous response in steady and transient flows of wormlike micellar solutions (with Zhou, Vasquez, McKinley), *Journal of Rheology*, 52, pp.591-623, 2008.

47. Probing shear-banding transitions of entangled fluids using Large Amplitude Oscillatory Shearing (LAOS) deformations (with Zhou, Ewoldt, McKinley), International Congress of Rheology - extended abstracts, CF25, 2008.
48. Extensional flow of wormlike micelles (with Cromer, McKinley), *Chemical Engineering Science*.64, pp. 4588-4596, 2009.
49. Microstructure and shear rheology of entangled wormlike micelles in solution (with Liberatore, Nettesheim, Vaquez, Helgeson, Wagner, Porcar, Hu), *Journal of Rheology* 53(2), pp. 441-458, 2009.
50. Probing shear-banding transitions of the VCM model for entangled wormlike micellar solutions using Large Amplitude Oscillatory Shearing (LAOS) deformation (with Zhou, McKinley), *Journal of Non-Newtonian Fluid Mech.*,165(21-22), pp. 142-1472, 2010.
51. Wormlike micellar solutions II: Comparison between experimental data and scission model predictions (with Pipe, Kim, McKinley, Vasquez), *J. Rheology* 54(4) pp. 881-913, 2010.
52. Pressure-driven flow of wormlike micellar solutions in rectilinear microchannels, (with Cromer, McKinley), *Journal of Non-Newtonian Fluid Mechanics*, Feb. 2011, Vol 166(3-4) pp. 180-193.
53. Interfacial instability of pressure-driven channel flow for a two-species model of entangled wormlike micellar solutions (with Cromer, McKinley) *J. Non-Newtonian Fluid Mech.*, 166. pp. 566-577, June 2011.
54. Thin film dynamics on a prolate spheroid with application to the cornea (with Braun, Usha, McFadden, Driscoll, King-Smith) *J Eng Math*, 73 pp. 1-18, 2012.
55. Multiple shear-banding transitions for a model for wormlike micellar solutions (with Zhou, McKinley) *SIAM J. Appl. Math.*, vol. 72-74, pp. 1192-1212, 2012.
56. Nonequilibrium thermodynamic modeling of the structure and rheology of wormlike micellar solutions (with Germann, Beris) *J. Non-Newtonian Fluid Mech.*196, pp. 51-57, 2013.
57. Advancing Women in STEM: A Case Study (with Andreasen, Doty) submitted.
58. Pressure-driven flow of wormlike micellar mixtures through converging/diverging channels (with Cromer) to be submitted.
59. Wormlike micellar solutions III: VCM-model predictions in steady and transient shearing flows (with Zhou, McKinley) *J. Non-Newt. Fluid. Mech.* 211, 2014, 70-83.
60. Investigations of inhomogeneous shear flow of a wormlike micellar solution using a thermodynamically consistent model (with Germann, Beris), *J. Non-Newtonian Fluid Mech.*, (207) 2014,21-31.