List of Publications

A Numerical Study of Transient Mixed Convection Flows in a Thermal Storage Tank, *J. Solar Energy Eng.* **105**, 246–253 (1983) (with A.M.C. Chan & D. Giusti)

An Approximate Analytical Solution to the Freezing Problem Subject to Convective Cooling and with Arbitrary Initial Liquid Temperatures, *Int. J. Heat Mass Transfer* **26**, 1712–1715 (1983). (with A.M.C. Chan & M. Shoukri)

Regular and Chaotic Bubble Oscillations in Periodically Driven Pressure Fields, *Phys. Fluids* **30**, 3342–3350 (1987). (with B. Birnir & S. Banerjee)

The Dynamics of Periodically Driven Bubble Clouds, *Phys. Fluids* **31**, 3519–3531 (1988). (with S. Banerjee)

Existence Theory and Invariant Manifolds of Bubble Clouds, *Comm. Pure Appl. Maths.* **43** 363–413 (1990). (with B. Birnir)

Bubbly Flow and its Relation to Conduction in Composites, *J. Fluid Mech.* **233** 65–81 (1991). (with G. Milton)

Momentum Interactions in Dispersed Flow: An Averaging and a Variational Approach, *Int. J. Multiphase Flow*, **18** 65–87 (1991). (with C. Pauchon)

On the Motion of Bubbles in a Periodic Box, *J. Fluid Mech.*, **254** 79–112 (1993).

Oscillatory Instability of Traveling Waves of a KdV–Burgers Equation, *Physica D* **67** (1993). (with R.L. Pego & M.I. Weinstein)

A level set approach for incompressible two–phase flow, *J. Comp. Phys.* **114**, 146–159 (1994). (with M. Sussman & S. Osher)

Oscillatory instability of solitary waves in a continuum model of lattice vibrations, *Nonlinearity*, **8**, 921–941, (1995). (with R.L. Pego & M.I. Weinstein)

A Kinetic Theory for Bubbly Flow I : Collisionless Case, *SIAM J. Appl. Math.* **56** 327–357, (1996). (with G. Russo)

A Kinetic Theory for Bubbly Flow II : Fluid Dynamic Limit, *SIAM J. Appl. Math.* **56**, 358–371 (1996). (with G. Russo)

A Vlasov description of the Euler equation, *Nonlinearity* **9** 1361–1386 (1996).

A simple level set method for Stefan problems, *J. Comp. Phys.* **135** 8–29 (1997).(with S. Chen, B. Merriman, and S. Osher)

Axisymmetric free boundary problems, *J. Fluid. Mech.* **341**, 269–294 (1997).(with M. Sussman)

An improved level set method for incompressible two–phase flows, *Computers and Fluids* **27**, 663–680 (1998). (with M. Sussman, E. Fatemi, and S. Osher)

Synchronization and relaxation for a class of globally coupled Hamiltonian systems, *Physica D* **124** 104–125 (1998).

Impulse formulations of the Euler equations: general properties and numerical methods, *J. Fluid Mech.* **391** 189–209, 1999. (with G. Russo)

Spiral Crystal Growth, *Physica D* **138** 282–301, 2000.

A level set method for the evolution of faceted interfaces, *SIAM J. Sci. Comp.* **6** 2073–2095 2000. (with G. Russo)

A remark on computing distance functions *J. Comp. Phys.* **163** 51–67 2000. (with G. Russo)

Scaling of dislocation cell structures: diffusion in orientation space, *Proc. R. Soc. Lond. A* **457** 1807–1819 2001. (with M. Miodownik, D. Srolovitz, and E. Holm).

A Vlasov equations for sound wave propagation in bubbly fluids *J. Fluid Mech.* **454** 287–325 (2002).

Level Set Methods for Fluid Interfaces *Annual Review of Fluid Mechanics* **35** 341–372 (2003). (with J. Sethian).

Effective equations for sound and void wave propagation in bubbly fluids, *SIAM J. App. Math.* **63** 1849–1888 (2003). (with N. Wang)

Semi-implicit level set methods for curvature flow and for motion by surface diffusion. *J. Sci. Comput.* **19** 439–456 (2003).

Interacting particles, the stochastic Fisher-Kolmogorov- Petrovsky-Piscounov equation, and duality, *Physica A* **325** 243–259 (2003) C.R. Doering and C. Mueller)

Coupling kinetic monte-carlo with continuum models with application to epitaxial growth. *J. Comput. Phys* **189** 197–211 (2003) (with T. Schulze and W. E)

Quasicontinuum Monte Carlo: A method for surface growth caculations *Phys. Rev. B*, **69** 121406(R) (2004). (with G. Russo and L. Sander)

Conference Proceedings

Effect of Natural Convection on Freezing in a Cavity, in Heat Transfer 1982, Proc. of the 7th Int. Heat Transfer Con, Munich, ed. U. Grigull et al, Vol. 2, 357–363 (Hemisphere, Washington, 1982). (with A.M.C. Chan & M. Shoukri)

Structural Stability of Solutions to Integrable Nonlinear PDE's and Explicit Poincare' Maps, in *Nonlinear Evolution*, Proc. 4th Workshop on Nonlinear Evolution and Dynamical Systems, Montpelier, 1987 ed. by J. Leon (World Scientific, Singapore). (with B. Birnir)

The Virtual Mass in Slug Flow, Proc. Multiphase Production Conf., Cannes, France, June 15-19, 1991. (with C. Pauchon and B. Molin)

A remark on the solitary wave stability for a Boussinesq equation, in: *Nonlinear Dispersive Wave Systems*, ed. Lokenath Debnath, World Scientific (1992).

Singularity Formation for Models of Axi-Symmetric Swirling Flow, in: *Singularity in Fluids, Plasmas and Optics*, eds. R.E. Caflisch & G.C. Papanicolaou, Kluwer Academic (1993). (with R. Caflisch)

Bubbly flows with gravity and weak viscous effects *Proceedings of the IMA workshop on Particulate Flows: Processing and Rheology* editors D.A. Drew, D.D. Joseph, and S.L. Passman, Springer (1998).

Effective equation for flows with drifting and oscillating bubbles, in: *IUTAM Symposium on Nonlinear Waves in Multi-phase Flow*, ed. H.C. Chang, Kluwer Academic (2000). (with N. Wang)

Noisy Wavefront Propagation in the Fisher-Petrovsky-Piscunov Equation, in UPoN: Proceedings of the 3rd International Conference on Unsolved Prolems of Noise, NIH, Bethesda, 2002, ed. S. Bezrukov. (AIP, to appear, with C.R. Doering and C. Mueller)