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PERSONAL

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Boulder, CO 80302 USA

Birth information: Santa Barbara, California, November 18, 1941

Marital status: Single

EDUCATIONAL

B.S., Aeronautics, California State Polytechnic College, Pomona, CA, 1963.

M.S., Aeronautics, California Institute of Technology, Pasadena, CA, 1964.

Diploma, Aeronautics, Von Kármán Institute, Rhode-Saint-Genèse, Belgium, 1967.

Engineer, Aeronautics, California Institute of Technology, Pasadena, CA, 1968.

Ph.D., Aerospace Engineering, University of Southern California, Los Angeles, CA, 1973.

PROFESSIONAL EXPERIENCE

Academic:

1964 - 1966 Teaching Assistant, Caltech, Pasadena, CA.

1968 - 1970 Research Assistant, University of Southern California, Los Angeles, CA.

1970 - 1971 Research Assistant and Lecturer, University of Southern California, Los Angeles, CA.

1971 - 1972 Research Assistant, University of Southern California, Los Angeles, CA.

1973 - 1975 Post-Doctoral Fellow, University of Southern California, Los Angeles, CA.

1975 - 1981 Research Associate and Lecturer, University of Southern California, Los Angeles, CA.

1981 - Associate Professor, Mechanical Engineering Department, University of Colorado, Boulder, CO.

External Positions:

6/89 - 3/90 Visiting Fellow, School of Mathematics, University of East Anglia, Norwich, England.

3/90 - 8/90 Visiting Professor, Department of Chemical Physics, Universidad Complutense, Madrid, Spain.

5/91 - 7/91 Visiting Scholar, Escuela Técnica Superior de Ingenieros Aeronáuticos, Madrid, Spain.

6/93 - 7/93 Visiting Scholar, School of Mathematics, University of East Anglia, Norwich, England.

6/96 - 8/96 Visiting Scholar, International Center for Advanced Studies, Nizhny Novgorod, Russia.

9/97 - 4/97 Maître de Research, Laboratoire d'Hydrodynamique, Ecole Polytechnique, Palaiseau, France.

5/97 - 7/97 Visiting Professor, Escuela Técnica Superior de Ingenieros Aeronáuticos, Madrid, Spain.

5/04 - 7/04 Visiting Professor, Hochbautechnik, ETH Zürich, Zürich, Switzerland.

Industrial:

1963 Junior Research Engineer, Boeing Aircraft Company, Renton, WA.

1967 - 1968 Research Engineer, Vehicle Research Corporation, Pasadena, CA.

THESES

Diplôme: "Investigation of high Reynolds number flow over a circular cylinder," directed by P. Colin, Von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium, 1967.

Engineer: "Wake transition and blockage effects on cylinder base pressure," thesis directed by A. Roshko, Department of Aeronautical Engineering, CALTECH, Pasadena, California, 1968.

Ph.D: "On the spin-up and spin-down of a contained fluid," thesis directed by T. Maxworthy, Department of Aerospace Engineering, USC, Los Angeles, California, 1973.

PROFESSIONAL ACTIVITIES AND SERVICE

Consultantships:

Spin balancing of spacecraft; Hughes Space and Communications, Los Angeles, CA, 1977.

Equipment failure in climbing accidents; local lawyers, Denver, CO, 1982.

Invalidity of bloodstain pattern interpretation for crime scene reconstruction; Boulder County Justice Department, Boulder, CO, 1987.

Convection in the annealing of iron railroad rails; Colorado Steel and Technology Incorporation, Pueblo, CO, 1988.

Energy separation in a vortex tube at supersonic speeds; MT West Pipliners and Fabrication Company, Fruita, CO, 1992.

Plugging of water-filled orphan wells using bentonite; Benterra Corporation, Bakersfield, CA, 2001, 2002.

Manuscript Reviews:

*AIAA Journal; Journal of Hydronautics; ASME Journal of Applied Mechanics;
ASME Journal of Fluids Engineering; Metallurgical Transactions A; Physical Review Letters;
Applied Mechanics Reviews; ASME Journal of Heat Transfer; Applied Scientific Research;
Journal of Engineering Mathematics; SIAM Journal of Applied Mathematics; Fluid Dynamics Research;
The Physical Review; Tellus; Physical Review E; Journal of Fluid Mechanics; Physics of Fluids;
International Journal of Engineering Science; Heat and Mass Transfer; Applied Mathematics Letters;
Chemical Engineering Communications; Proceedings of the Royal Society A; Journal of Porous Media;
European Journal of Mechanics B/Fluids; Quarterly Journal of Mechanics and Applied Mathematics;
Zeitschrift für Angewandte Mathematik und Mechanik; Chemical Engineering Science;
Theoretical and Computational Fluid Dynamics; Journal of Fluids Research; Experiments in Fluids;
Advances in Water Research; Comptes Rendus Mecanique; Combustion Theory Modelling; Nature;
Review of Scientific Instruments; International Journal of Heat and Mass Transfer*

Proposal Reviews:

Army Research Office
Department of Energy
National Science Foundation
National Aeronautics and Space Administration

Meetings Organized:

Ninth International Couette-Taylor Workshop, honoring Russell J. Donnelly on his 65th year, Boulder, Colorado, August 7-10, 1995. This meeting was co-organized with Professor R. Tagg of the University of Colorado at Denver.

EDITORIAL DUTIES:

Associate Editor, *Journal of Applied Fluid Mechanics*

SOCIETY MEMBERSHIP

American Physical Society, past Executive Committee Member
Sigma Xi

HONORS, AWARDS AND FELLOWSHIPS

Boeing Fellowship, California Institute of Technology, Pasadena, CA, 1963.
NATO Fellowship, Von Kármán Institute, Rhode-Saint-Genèse, Belgium, 1966-7.
Exxon Educational Grant, University of Colorado, Summer 1982, 1983, 1984, 1985.
SERC Visiting Fellowship, University of East Anglia, Norwich, England, 1989-90.
Visiting Professor, Universidad Complutense, Madrid, Spain, 1990.
Visiting Scholar, Escuela Técnica Superior de Ingenieros Aeronáuticos, Madrid, Spain, 1991.
Visiting Scholar, University of East Anglia, Norwich, England, 1993.
Certificate of Recognition, National Aeronautics and Space Administration, 1995.
Visiting Scholar, International Center for Advanced Studies, Nizhny Novgorod, Russia, 1996.
Mâitre de Research, LadHyX, Ecole Polytechnique, Palaiseau, France, 1996-7.
Visiting Professor, Escuela Técnica Superior de Ingenieros Aeronáuticos, Madrid, Spain, 1997.
Elected Fellow of the American Physical Society, 1999.
Visiting Professor, Hochbautechnik, ETH Zürich, Zürich, Switzerland, 2004.

PUBLICATIONS

Articles:

Containers with isochronous fluid oscillations, with B. A. Troesch, *SIAM J. Appl. Math.*, **23**, 477-489, 1972.

Analysis of a simple circuit for constant temperature anemometry, with F. K. Browand, *J. Physics E: Sci. Instr.*, **8**, 553-560, 1975.

Large scale structure in the developing mixing layer, with F. K. Browand, *J. Fluid Mech.*, **76**, 127-144, 1976.

On the motion of a rotating fluid in the presence of an infinite rotating disk, with L. G. Redekopp, *Arch. Mech.*, **28**, 1011-1024, 1976.

On the spin-up and spin-down of a rotating fluid. Part 1. Extending the Wedemeyer model, *J. Fluid Mech.*, **77**, 685-708, 1977.

On the spin-up and spin-down of a rotating fluid. Part 2. Measurements and stability, *J. Fluid Mech.*, **77**, 709-735, 1977.

On the production and interaction of planetary solitary waves: Applications to the Jovian atmosphere, with T. Maxworthy and L. G. Redekopp, *Icarus*, **33**, 388-409, 1978.

Experiments on strong interactions between solitary waves, with T. Maxworthy, *J. Fluid Mech.*, **85**, 417-431, 1978.

Internal solitary waves in a linearly stratified fluid, *Tellus*, **30**, 177-184, 1978.

Solitary waves in zonal shear flows, with L. G. Redekopp, *J. Atmos. Sci.*, **35**, 790-804, 1978.

Corrigendum to 'Internal solitary waves in a linearly stratified fluid', *Tellus*, **31**, 465-467, 1979.

Surface tension restoring forces on gravity waves in narrow channels, with D. Heckerman, S. Garrett, and G. Williams, *Phys. Fluids*, **22**, 2270-2276, 1979.

Measurements of fluid oscillations in isochronous containers, with A. J. Mamrol, *Phys. Fluids*, **23**, 406-407, 1980.

Solitary Rossby waves in the presence of vertical shear, with L. G. Redekopp, *J. Atmos. Sci.*, **37**, 2243-2247, 1980.

Some effects of initial conditions on Korteweg-de Vries solitons, with L. G. Redekopp, *A.S.C.E. J. Engr. Mech. Div.*, **108**, 277-289, 1982.

A phase space analysis of baroclinic flow, with D. Farmer and J. Hart, *Phys. Lett. A*, **91**, 22-24, 1982.

Experiments on leapfrogging internal solitary waves, with M. Johnson, *J. Fluid Mech.*, **122**, 195-213, 1982.

Instability of natural convection in a tall vertical annulus, with G. Mehrdadtehranfar, *Phys. Fluids*, **28**, 776-787, 1985.

The influence of sidewall heat transfer on convection in a confined saturated porous medium, with D. R. Kassoy, *Phys. Fluids*, **29**, 349-355, 1986.

Isochronous containers, *Phys. Fluids*, **29**, 2324-2325, 1986.

Stokes drag on hollow cylinders and conglomerates, with I. A. Lasso, *Phys. Fluids*, **29**, 3921-3934, 1986.

Onset of convection in a vertical slab of saturated porous media between two impermeable conducting blocks, with M. Wang and D. R. Kassoy, *Int. J. Heat Mass Transfer*, **30**, 1331-1341, 1987.

Capillary gravity waves with fixed contact lines: An approximate analysis, with A. Norris, *Int. J. Physico-Chemical Hydrodynamics*, **9**, 393-402, 1987.

The effect of slab width on the stability of natural convection in a saturated porous medium, with D. Chelghoum and D. R. Kassoy, *Phys. Fluids*, **30**, 1941-1947, 1987.

A note on 'Mass and heat transfer by natural convection in a vertical slot filled with porous medium', *Int. J. Heat Mass Transfer*, **30**, 1561, 1987.

- Cylindrical solitary waves, with R. Zakhem, *J. Fluid Mech.*, **191**, 557-573, 1988.
- Local vortex pairing in a free shear layer, with H. T. Moon, *Phys. Fluids*, **31**, 3804-3806, 1988.
- Multiple solutions of the Falkner-Skan equation with a stretching boundary, with N. Riley, *SIAM J. Appl. Math.*, **49**, 1350-1358, 1989.
- On the radial packing of circles in the plane, with K. Pfendt, *College Math. J.*, **21**, 112-120, 1990.
- The shape and stability of pinned axisymmetric rotating menisci, with S. Krumkieck and P. Rouse, *J. Fluid Mech.*, **219**, 25-50, 1990.
- The stability of circular Couette flow with radial heating, with M. Ali, *J. Fluid Mech.*, **220**, 53-84, 1990.
- Internal solitary waves, with M. G. Velarde, *Stud. Appl. Math.*, **86**, 167-184, 1992.
- Evidence for solitary wave behavior in Marangoni-Benard convection, with H. Linde and M. G. Velarde, *Phys. Fluids A*, **4**, 921-926, 1992.
- On the drag of model dendrite fragments at low Reynolds number, with H. de Groh III and R. Zakhem, *Metall. Trans. A*, **23**, 2169-2181, 1992.
- On the linear stability of cellular spiral Couette flow, with M. Ali, *Phys. Fluids A*, **5**, 1188-1200, 1993.
- Calculation of dendrite settling velocities using a porous envelope, with S. Ahuja, C. Beckermann, H. C. de Groh III and R. Zakhem, *Metall. Trans. B*, **24**, 749-753, 1993.
- Vortex ring pairs: Numerical Simulation and Experiment, with N. Riley, *J. Fluid Mech.*, **257**, 311-337, 1993.
- Stability criteria for two immiscible fluids rigidly rotating in zero gravity, *Mécanique Appliquée*, **39**, No. 5, 481-496, 1994.
- Natural convection beneath a downward facing heated plate in a porous medium, with F. Higuera, *European J. Mech. B/Fluids*, **14**, 29-40, 1995.
- Detection of ocean waves using satellite altimetry: Application to equatorial Kelvin waves, with B. Dayyani and G. H. Born, *Marine Geodesy*, **19**, 359-385, 1996.
- Similarity solutions for steady laminar convection along heated plates with variable oblique suction: Newtonian and Darcian fluid flow, *Quart. J. Mech. Appl. Math.*, **49**, 373-403, 1996.
- Stability of stationary endwall boundary layers during spin-down, with J. M. Lopez, *J. Fluid Mech.*, **326**, 373-398, 1996.
- Boundary layer similarity flow driven by power-law shear, with D. G. Kubitschek, and S. N. Brown, *Acta Mechanica*, **120**, 199-215, 1997.
- Blasius boundary layer flow over an irregular leading edge, *Phys. Fluids*, **9**, 1470-1472, 1997.

Axisymmetric stagnation-point flow impinging on a transversely oscillating plate with suction, with S. Mahalingam, *J. Engr. Math.*, **31**, 305-318, 1997.

New solutions for laminar boundary layers with cross flow, *Z. Angew. Math. Phys.*, **48**, 341-356, 1997.

Reflection of a high-amplitude solitary wave at a vertical wall, with M. J. Cooker and D. S. Bale, *J. Fluid Mech.*, **342**, 141-158, 1997.

The generation of two-dimensional vortices by transverse oscillation of a soap film, with V. O. Afenchenko, A. B. Ezersky, S. V. Kiyashko, and M. I. Rabinovich, Gallery of Fluid Motion, *Phys. Fluids*, **9**, S2, 1997.

On the instability of inviscid, rigidly rotating immiscible fluids in zero gravity, with A. Fridberg and M. Goto, *Z. Angew. Math. Phys.*, **48**, 921-951, 1997.

Crystallization of non-Brownian spheres under horizontal shaking, with O. Pouliquen and M. Nicolas, *Phys. Rev. Lett.*, **79**, 3640-3643, 1997.

The generation of two-dimensional vortices by transverse oscillation of a soap film, with V. O. Afenchenko, A. B. Ezersky, S. V. Kiyashko, and M. I. Rabinovich, *Phys. Fluids*, **10**, 390-399, 1998.

Radial stagnation flow on a rotating circular cylinder with uniform transpiration, with G. M. Cuning and A. M. J. Davis, *J. Engr. Math.*, **33**, 113-128, 1998.

Stokes flow over axisymmetric bodies: Application to hollow cylinders, with R. P. Roger, *Euro. J. Mech. B/Fluids*, **17**, 187-203, 1998.

Oblique two-fluid stagnation-point flow, with B. Tilley, *Euro. J. Mech. B/Fluids*, **17**, 205-217, 1998.

Natural convection far downstream of a heat source on a solid wall, with F. J. Higuera, *J. Fluid Mech.*, **361**, 25-39, 1998.

Quasi-steady vortical structures in vertically vibrating soap films, with J. Vega and F. J. Higuera, *J. Fluid Mech.*, **372**, 213-230, 1998.

Generalized Couette-Poiseuille flow with boundary mass transfer, with F. Marqués and J. Sánchez, *J. Fluid Mech.*, bf 374, 221-249, 1998.

Analysis of Legeckis eddies in the near-equatorial Pacific, with D. Michler, B. Dayyani, and G. Born, *J. Geophys. Res.*, **104**, 7865-7887, 1999.

Instantaneous Stokes flow in the apex of a free surface fluid cone in uniform gravity, with V. Calmidi, *SIAM J. Appl. Math.*, **59**, 1520-1531, 1999.

Origin of coherent structures in a discrete chaotic medium, with M. I. Rabinovich, J. J. Torres, P. Varona and R. Huerta, *Phys. Rev. E*, **60**, 1130-1133, 1999.

Asymptotic estimates for two-dimensional sloshing modes, with A. M. J. Davis, *Phys. Fluids*, **12**, 971-978, 2000.

Analytical results for a BVP describing radial stagnation flow with transpiration, with J. E. Paultet, *J. Math. Anal. Appl.*, **247**, 246-254, 2000.

The laminar axisymmetric wake for power-law fluids, with C. W. Van Atta, *Acta Mechanica*, **146**, 239-245, 2001.

Thermal convection over flat plates with an irregular leading edge, *Int. J. Heat Mass Transfer*, **44**, 4711-4715, 2001.

Activation energy asymptotic analysis and numerical modelling of a strained laminar corner flame, with S. Mahalingham, *Combust. Theory Modelling*, **6**, 155-172, 2002.

Axisymmetric stagnation flow obliquely impinging on a circular cylinder, with V. Putkaradze, *Eur. J. Mech. B/Fluids*, **22** 123-132, 2003.

On secondary flow due to the coaxial rotation of two spheres: Low Reynolds number theory and finite Reynolds number experiment, with A. M. J. Davis, and K. Bühler, *Quart. J. Mech. Appl. Math.*, **56**, 547-569, 2003.

Stability of a fluid-saturated porous medium heated from below by forced convection, with J. Kubitschek, *Int. J. Heat Mass Transfer*, **46**, 3697-3705. 2003.

Turbulent wake solutions of the Prandtl- α equations, with V. Putkaradze, *Phys. Rev. E*. **67**, 03604 1-7, 2003.

Boundary effects on exact solutions of the Lagrangian-averaged Navier Stokes- α equations, with D. Holm, V. Putkaradze, B. Wingate, *J. Stat. Phys.*, **113**, 841-854, 2003.

On the inverse Magnus effect in free molecular flow, with A. Herczynski, *Phys. Fluids*, **16**, L9-L12, 2004.

Two-fluid jets and wakes, with A. Herczynski and G. I. Burde, *Phys. Fluids*, **16**, 1037-1048, 2004.

Model equations for the Eiffel Tower profile: Historical perspective and new results, with I. Pinelis, *Comptes Rendus Mecanique*, **332**, 571-584, 2004.

Response to “Comment on ‘Force on a spinning sphere moving in a rarefied gas’ and ‘On the inverse Magnus effect in free molecular flow’” [Phys. Fluids 16, 3832 (2004)] with A. Herczynski, *Phys. Fluids* (**16**, 3834, 2004.

Proposal for an iron tower: 300 metres in height; translation of “Projet d’une Tour en Fer de 300 Mètres de Hauteur Destinée à L’Exposition de 1889” (by G. Eiffel), with C. Roland, *Arch. Research Quart.* **8**, 215-245, 2004.

Nested toroidal vortices between concentric cones, with C. Malhotra, and A. M. J. Davis, *J. Fluid Mech.*, **522**, 117-139, 2005.

Nonexistence of solutions for reverse radial stagnation flow with transpiration, with J. E. Paultet, *Appl. Math. Lett.*, **18** 1009-1012, 2005.

Erratum to “Axisymmetric stagnation flow obliquely impinging on a circular cylinder” [*Eur. J. Mech. B/Fluids*, **22** (2) (2003) 123-131], [*Eur. J. Mech. B/Fluids*, **24**, 788-790, 2005.

The effect of rotation on conical wave beams in a stratified fluid, with T. Peacock, *Exp. in Fluids*, **39**, 32-37, 2005.

The preheated Airy wall jet, with E. Magyari, *Heat Mass Transfer*, **41**, 1014-1020, 2005.

Regimes of terminal motion of sliding spinning disks, with C. P. Malhotra, *Phys. Rev. Lett.*, **95**, 264303, 2005.

Heat transfer on a plate beneath an external uniform shear flow, with E. Magyari, *Intl. J. Thermal Sciences*, **45**, 110-115, 2006.

Thermal characteristics of the Airy wall jet for constant surface heat flux, with E. Magyari, *Heat Mass Transfer*, **42**, 813-816, 2006

Stability of a fluid-saturated porous medium contained in a vertical cylinder heated from below by forced convection, with J. Kubitschek, *Heat Mass Transfer*, **42**, 789-794, 2006.

Final steady flow near a stagnation point on a vertical surface in a porous medium, with K. Merrill, M. Beauchesne, J. Previte and J. Paullet, *Int. J. Heat Mass Trans.*, **49**, 4681-4686, 2006.

The effect of transpiration on self-similar boundary layer flow over moving surfaces, with D. G. Kubitschek and A. M. J. Davis, *Int. J. Engr. Sci.*, **44**, 730-737, 2006.

Convection regime flow in a vertical slot: Continuum of solutions from capped to open ends, *Heat Mass Trans.*, **43**, 103-109, 2006.

Heat transfer characteristics of the algebraically decaying Glauert jet, with E. Magyari, *Heat Mass Trans.*, **43**, 165-173, 2006.

Linear stability of differentially-heated circular Couette flow with simulated radial gravity, with R. Tagg, *Z. Angew. Mech. Phys.*, published online September 6, 2006.

Crocco variable formulation for uniform shear flow over a stretching surface with transpiration: multiple solutions and stability, with A. M. J. Davis and D. G. Kubitschek, *Z. Angew. Mech. Phys.* published online October 1, 2006.

Stability of a uniformly rotating viscous liquid column in zero gravity, with J. Kubitschek, *J. Fluid Mech.*, (in press).

Papers under review

On the terminal motion of sliding spinning disks with uniform Coulomb friction, with C. Malhotra, *Physica D*.

Review Articles:

Experimental Techniques in Laboratory Rotating Flows, *Lecture Notes in Engineering, 45: Advances in Fluid Mechanics Measurements*, edited by M. Gad-El-Hak, pp. 401-534 (Springer-Verlag, Heidelberg, 1989).

Vortex Rings, with N. Riley, *Physics News 1993*, pp. 31-33 (American Institute of Physics, New York, 1994).

Slowly Varying Solitary Waves, *Fluid Physics – Lecture Notes of Summer Schools*, edited by M. G. Velarde and C. I. Christov, pp. 304-328 (World Scientific Press, Singapore, 1995).

Book review of: Thinking About Ordinary Differential Equations, by R. E. O'Malley, Jr., *Eur. J. Mech. B/Fluids*, **18**, 315-317, 1999.

Books:

The Dynamics of Patterns, with M. I. Rabinovich and A. B. Ezersky, World Scientific Press, Singapore, 2000, 324 pp.

Proceedings:

Onset of convection in a porous medium with sidewall heat transfer, with D. R. Kassoy and M. Wang, Symposium on Stability and Convection, HTD-54, Book #600324, ASME Winter Annual Meeting, 1985.

Stability of Taylor-Couette flow with radial heating, with M. Ali, *Instabilities and Nonequilibrium Structures II*, edited by E. Tirapegui and D. Villarroel, pp. 255-268 (Kluwer Academic, Netherlands, 1989).

Symmetry and instability of radially-heated circular Couette flow in a tall vertical annulus, with M. Ali, Proceedings of the 3rd International Congress of Fluid Mechanics, (Vol. 1, Sect. 5, Paper 3), Cairo, Egypt, 1990.

Solitary waves in Marangoni-Benard convection, with H. Linde and M. Velarde, *Lecture Notes in Physics: Capillarity Today*, 36, Proceedings the Advanced Workshop on Capillarity held in memoriam Raymond Defay, ULB, Brussels, Belgium, May 7-10, 1990 (Springer-Verlag, Berlin, 1991).

Drag coefficient of an equiaxed dendrite settling in an infinite medium, with A. Ahuja, C. Beckermann, R. Zakhem and H. C. de Groh III, in *Micro/Macro Scale Phenomena in Solidification: Proceedings of the ASME Winter Annual Meeting*, HTD Vol. 218/AMD Vol. 139, pp. 85-91 (ASME, 1992).

Measurements of the Stokes settling speed of uniaxial and triaxial model dendrite fragments, with H. C. de Groh III and R. Zakhem, NASA TM-105916, 1992.

On the drag of model dendrite fragments at low Reynolds number, with R. Zakhem and H. C. De Groh III, Proceedings of the First International Conference on Transport Phenomena in Processing, Ed. S. I. Guceri, pp. 219-228 (Technomic Publishing Co., Lancaster, 1993).

Slowly-varying solitary waves, in *Fluid Physics: Lecture Notes of Summer Schools* (eds. M. G. Velarde and C. I. Christov), pp. 304-328 (World Scientific, London, 1995).

Hydrodynamic instability consideration for material processing in space, with M. Goto and A. Fridberg, 20th International Symposium on Space Technology and Science, (paper 96-g-11), Gifu, Japan, May 19-25, 1996.

Waves in radial gravity using magnetic fluid, with D. R. Ohlsen and J. E. Hart, NASA Proceedings: 4th Microgravity Fluid Physics and Transport Phenomena Meeting, pp. 717-721, August 28-30, 1998.

Asymptotic estimates for two-dimensional sloshing modes: Theory and experiment, Proceedings of Interfaces for the Twenty-First Century, Monterey, California, August 16-18, 1999.

COMPUTER PROGRAMS

Calculation of dendrite settling velocities: Version 1.0, with H. D. de Groh II and R. Zakhem, COSMIC, NASA Tech. Brief, 1993.

CONFERENCE PRESENTATIONS

Nonlinear spin-up and spin-down of a contained fluid, IUTAM 13th International Congress, Moscow, USSR, 1972.

On the spin-up and spin-down of a contained fluid, APS Division of Fluid Dynamics, 25th Annual Meeting, Boulder, CO, 1972.

Some remarks on the frequency response of hot-film probes, with F. K. Browand, APS Division of Fluid Dynamics, 26th Annual Meeting, New Haven, CT, 1973.

Large-scale structure in the turbulent mixing layer, with F. K. Browand, APS Division of Fluid Dynamics, 26th Annual Meeting, New Haven, CT, 1973.

On the motion of a rotating fluid in the presence of an infinite rotating disc, with L. G. Redekopp, APS Division of Fluid Dynamics, 27th Annual Meeting, Pasadena, CA, 1974.

On the motion of a rotating fluid in the presence of an infinite rotating disc, with L. G. Redekopp, Fluid Dynamics Symposium, 12th Biennial Meeting, Bialowieza, Poland, 1975.

On the interaction of solitary Rossby waves in zonal shear flows, with L. G. Redekopp, APS Division of Fluid Dynamics, 29th Annual Meeting, Eugene, OR, 1976.

Laboratory experiments on interacting solitary waves, with T. Maxworthy, APS Division of Fluid Dynamics, 29th Annual Meeting, Eugene, OR, 1976.

Internal solitary waves in a linearly stratified fluid, APS Division of Fluid Dynamics, 30th Annual Meeting, Bethlehem, PA, 1977.

Weakly nonlinear cylindrical gravity waves, with K. Ko and H. H. Kuehl, APS Division of Fluid Dynamics, 31st Annual Meeting, Los Angeles, CA, 1978.

Experiments on modal oscillations in isochronous containers, with A. Mamrol, APS Division of Fluid Dynamics, 31st Annual Meeting, Los Angeles, CA, 1978.

Weakly nonlinear cylindrical gravity waves, with K. Ko, American Meteorological Society, 2nd Conference on Atmospheric and Oceanic Waves and Stability, Boston, MA, 1978.

Solitary waves in the presence of vertical shear, with L. G. Redekopp, APS Division of Fluid Dynamics, 32nd Annual Meeting, Notre Dame, IN, 1979.

Leap-frogging solitary waves, with M. Johnson, APS Division of Fluid Dynamics, 33rd Annual Meeting, Ithaca, NY, 1980.

Phase space analysis of baroclinic instabilities, with D. Farmer and J. Hart, APS Division of Fluid Dynamics, 34th Annual Meeting, Monterey, CA, 1981.

Leap-frogging internal solitary waves, American Meteorological Society, 3rd Conference on Atmospheric and Oceanic Waves and Stability, San Diego, CA, 1981.

Phase space analysis of baroclinic instabilities, with D. Farmer and J. Hart, Dynamics Days, 1st Annual Chaos Workshop, La Jolla, CA, 1982.

Phase space analysis of wake transition flow, with C. Van Atta, APS Division of Fluid Dynamics, 35th Annual Meeting, New Brunswick, NJ, 1982.

Instability of natural convection in a tall annulus, with G. Mehrdadtehranfar, APS Division of Fluid Dynamics, 36th Annual Meeting, Houston, TX, 1983.

The effects of sidewall boundary conditions on the stability of convection in a saturated porous vertical slab, with D. R. Kassoy, APS Division of Fluid Dynamics, 37th Annual Meeting, Providence, RI, 1984.

On the radial packing of variable diameter circles filling the plane, SIAM Fall Meeting, Tempe, AZ, 1985.

The shape and stability of axisymmetric rotating rivulets, with S. P. Krumdieck, APS Division of Fluid Dynamics, 38th Annual Meeting, Tuscon, AZ, 1985.

The radial packing of circles in a plane, with K. Pfendt, AAAS Southwestern and Rocky Mountain Division, 62nd Annual Meeting, Boulder, CO, 1986.

Stokes drag on hollow cylinders and conglomerates, with I. A. Lasso, AAAS Southwestern and Rocky Mountain Division, 62nd Annual Meeting, Boulder, CO, 1986.

Onset of convection in a porous medium embedded between conducting blocks, with M. Wang and D. R. Kassoy, AAAS Southwestern and Rocky Mountain Division, 62nd Annual Meeting, Boulder, CO, 1986.

Visualization of the stability of viscous flow between rotating cylinders with a radial thermal gradient, with M. Ali, AAAS Southwestern and Rocky Mountain Division, 62nd Annual Meeting, Boulder, CO, 1986.

The influence of sidewall heat transfer on convection in confined saturated porous media, with D. Chelghoum and D. R. Kassoy, AAAS Southwestern and Rocky Mountain Division, 62nd Annual Meeting, Boulder, CO, 1986.

The shape and stability of axisymmetric rotating rivulets, with S. Krumdieck, AAAS Southwestern and Rocky Mountain Division, 62nd Annual Meeting, Boulder, CO, 1986.

Stokes drag on hollow cylinders and conglomerates, with I. A. Lasso, APS Division of Fluid Dynamics, 39th Annual Meeting, Columbus, OH, 1986.

Preliminary results on the stability of Taylor-Couette flow with radial heating, with M. Ali, 5th Taylor Vortex Flow Working Party, Tempe, AZ, 1987.

Capillary gravity waves with fixed contact lines: an approximate analysis, 6th International Physicochemical Hydrodynamics Conference, Oxford, England, 1987.

Cylindrical solitary waves, 35th SIAM Anniversary Meeting, Denver, CO, 1987.

The effect of g-jitter on a thermosyphon, with R. Zakhem, APS Division of Fluid Dynamics, 40th Annual Meeting, Eugene, OR, 1987.

The stability of Taylor-Couette flow with radial heating, with M. Ali, APS Division of Fluid Dynamics, 40th Annual Meeting, Eugene, OR, 1987.

The effect of slab width on the stability of natural convection in confined saturated porous media, APS Division of Fluid Dynamics, 40th Annual Meeting, Eugene, OR, 1987.

The stability of Taylor-Couette flow with radial heating, with M. Ali, 2nd International Workshop on Instabilities and Nonequilibrium Structures, Valparaíso, Chile, 1987.

Simulated detection of free-surface ocean features using GEOSAT altimetry sampling, with B. Dayyani, AGU Winter Ocean Sciences Meeting, New Orleans, LA, 1988.

Feature detection in the tropical Pacific using GEOSAT, with G. Born and B. Dayyani, PACON '88 Meeting, Honolulu, Hawaii, 1988.

Stability of a thermosyphon with G-Jitter, with R. Zakhem, APS Division of Fluid Dynamics, 41st Annual Meeting, Buffalo, NY, 1988.

Multiple solutions of the Falkner-Skan equation with a stretching boundary, with N. Riley, APS Division of Fluid Dynamics, 41st Annual Meeting, Buffalo, NY, 1988.

The instability of Taylor-Couette flow with radial heating, with M. Ali, APS Division of Fluid Dynamics, 41st Annual Meeting, Buffalo, NY, 1988.

External fluctuations and the origin of turbulent slugs in pipe flow, with R. Deissler, APS Division of Fluid Dynamics, 41st Annual Meeting, Buffalo, NY, 1988.

The stability of circular Couette flow with radial heating, with M. Ali, 5th Taylor Vortex Flow Working Party, Brussels, Belgium, 1989.

Rapid integration of dynamical systems, Workshop on Dynamics, Bifurcations and Singularity Theory, University of Warwick, Coventry, England, 1989.

The shape and stability of pinned rotating axisymmetric rivulets, VIIth European Symposium on Materials and Fluid Sciences in Microgravity, Oxford University, Oxford, England, 1989.

Symmetry and instability of radially-heated circular Couette flow in a tall vertical annulus, with M. Ali, 3rd International Congress of Fluid Mechanics, Cairo, Egypt, 1990.

Instabilities, waves and solitons excited by capillarity and interfacial stresses, with M. G. Velarde, NATO Advanced Research Workshop: The Global Geometry of Turbulence, Rota, Spain, 1990.

Solitary waves in fluid dynamics, Universidad Complutense Curso de Verano: Progress in Fluid Physics, Aguadulce, Spain, 1990 (invited lecture).

Evidence of solitary wave behavior in Marangoni convection, Universidad Complutense Curso de Verano: Progress in Fluid Physics, Aguadulce, Spain, 1990.

The shape and stability of pinned rotating axisymmetric menisci, with S. Krumdieck and P. Rouse, APS Division of Fluid Dynamics, 43rd Annual Meeting, Ithaca, New York, November 18-20, 1990.

The flow due to a slightly inclined flat plate with variable heating in porous media with suction and blowing, with F. Higuera, APS Division of Fluid Dynamics, 44th Annual Meeting, Scottsdale, AZ, November 20-22, 1991.

On the drag of model dendrite fragments at low Reynolds numbers, with R. Zakhem and H. C. De Groh III, APS Division of Fluid Dynamics, 44th Annual Meeting, Scottsdale, AZ, November 20-22, 1991.

Axisymmetric Stokes flow past a hollow cylinder, with R. P. Roger, APS Division of Fluid Dynamics, 44th Annual Meeting, Scottsdale, AZ, November 20-22, 1991.

Satellite detection of ocean waves, with B. Dayyani and G. Born, 13th Annual Conference of the Canadian Applied Mathematics Society, Edmonton, Alberta, Canada, June 15-18, 1992.

Drag coefficient of an equiaxed dendrite settling in an infinite medium, with A. Ahuja, C. Beckermann, R. Zakhem and H. C. de Groh III, Micro/Macro Scale Phenomena in Solidification: ASME Winter Annual Meeting, Anaheim, California, November 8-13, 1992.

Interfacial stability in horizontal Taylor-Couette flow with a partially filled gap, with N. Swaminathan, APS Division of Fluid Dynamics, 45th Annual Meeting, Tallahassee, FL, November 22-24, 1992.

A class of similarity flows for mixed convection along heated plates with suction, M. Amberg, APS Division of Fluid Dynamics, 45th Annual Meeting, Tallahassee, FL, November 22-24, 1992.

A linear stability analysis of cellular spiral Couette flow, with M. Ali, APS Division of Fluid Dynamics, 45th Annual Meeting, Tallahassee, FL, November 22-24, 1992.

On the motion of counterrotating vortex ring pairs, with N. Riley, APS Division of Fluid Dynamics, 45th Annual Meeting, Tallahassee, FL, November 22-24, 1992.

On the linear stability of cellular spiral Couette flow, with M. Ali, 8th Couette-Taylor Meeting: Spatio-Temporal Properties of Centrifugal Instabilities, Nice, France, March 28-31, 1993.

A Satellite's view of ocean wave dynamics, with B. Dayyani and G. Born, Geophysical Fluid Dynamics in the Tetons, Teton Lodge, Wyoming, June 20-22, 1993.

The stability of two immiscible fluids under rigid rotation in zero gravity, First Conference on Applied and Industrial Mathematics from Romania, University of Oradea, Oradea, Romania, September 3-5, 1993.

The wall residence time for solitary waves reflected from a vertical wall, with M. Cooker and D. S. Bale, APS Division of Fluid Dynamics, 46th Annual Meeting, Albuquerque, NM, November 21-23, 1993.

Instability of two rigidly rotating immiscible fluids in zero gravity, with A. Fridberg, APS Division of Fluid Dynamics, 46th Annual Meeting, Albuquerque, NM, November 21-23, 1993.

Boundary layer similarity flow driven by inviscid shear, with D. Kubitschek, APS Division of Fluid Dynamics, 46th Annual Meeting, Albuquerque, NM, November 21-23, 1993.

High amplitude wave reflection from a vertical wall, with M. Cooker and D. Bale, Colorado Days at Los Alamos, Center for Nonlinear Studies, Los Alamos National Laboratory, Los Alamos, New Mexico, May 4-5, 1994.

Reflection of a high amplitude solitary wave from a vertical wall, with M. Cooker and D. Bale, 11th Symposium on Fluid Mechanics, Edmonton, Alberta, Canada, June 10-12, 1994.

New similarity reductions for Darcian and Newtonian boundary layer flow along heated flat plates, Rocky Mountain Experience IV, Boulder, Colorado, August 3-4, 1994.

Synchronous sloshing in free and suspended containers APS Division of Fluid Dynamics, 47th Annual Meeting, Atlanta, GA, November 20-22, 1994.

Stability of stationary endwall boundary layers during spin-down, with J. M. Lopez, APS Division of Fluid Dynamics, 47th Annual Meeting, Atlanta, GA, November 20-22, 1994.

Similarity solutions of boundary layer equations, Rocky Mountain Experience V, Boulder, Colorado, March 17-18, 1995.

Circular waves in Bodewadt boundary layers, with J. Lopez, 9th International Couette-Taylor Workshop, University of Colorado, Boulder, CO August 7-10, 1995.

Axisymmetric stagnation point flow impinging on a transversely oscillating plate with uniform suction," with S. Mahalingam, APS Division of Fluid Dynamics, 48th Annual Meeting, Irvine, CA, November 19-21, 1995.

Radial stagnation flow on a rotating cylinder with uniform suction, with G. Cunnings, APS Division of Fluid Dynamics, 48th Annual Meeting, Irvine, CA, November 19-21, 1995.

New solutions for cross-flow over laminar boundary layers, APS Division of Fluid Dynamics, 48th Annual Meeting, Irvine, CA, November 19-21, 1995.

Hydrodynamic instability consideration for material processing in space, with M. Goto and A. Fridberg, 20th International Symposium on Space Technology and Science, Gifu, Japan, May 19-25, 1996.

On the instability of inviscid, rigidly rotating immiscible fluids in zero gravity, with M. Goto and A. Fridberg, EUROMECH Colloquium 355: Interfacial Instabilities, Ecole Polytechnique, Palaiseau/Paris, France, September 11-13, 1996.

Excitation of two-dimensional vortex flows in flexurally oscillating soap films, with V. Afenchenko, D. E. Ermoshin, A. Ezersky, S. Kiyashko, and M. Rabinovich, APS Division of Fluid Dynamics, 49th Annual Meeting, Syracuse, NY, November 24-26, 1996.

The generation of two-dimensional vortices by transverse oscillation of a soap film, photographs presented for the Gallery of Fluid Motion, APS Division of Fluid Dynamics, 49th Annual Meeting, Syracuse, NY, November 24-26, 1996.

Porous flow within concentric cylinders, with F. Marqués and J. Sánchez, APS Division of Fluid Dynamics, 49th Annual Meeting, Syracuse, NY, November 24-26, 1996.

Oblique two-fluid stagnation-point flow, with B. Tilley, Gesellschaft für Angewandte Mathematik und Mechanik, Annual Scientific Conference (GAMM 97), University of Regensburg, Regensburg, Germany, March 24-27, 1997.

A generalized similarity formulation for steady Couette-Poiseuille flow, with F. Marqués and J. Sánchez, 10th International Couette-Taylor Workshop: Centrifugal Flows in Science and Industry, Paris, France, July 15-18, 1997.

Instantaneous Stokes flow in the apex of a fluid cone with a free surface, with V. Calmidi, APS Division of Fluid Dynamics, 50th Annual Meeting, San Francisco, CA, November 23-25, 1997.

Natural convection far downstream of a heat source on a solid wall, with F. J. Higuera, APS Division of Fluid Dynamics, 50th Annual Meeting, San Francisco, CA, November 23-25, 1997.

Crystallization of spherical particles under horizontal shaking, with O. Pouliquen and M. Nicolas, APS Division of Fluid Dynamics, 50th Annual Meeting, San Francisco, CA, November 23-25, 1997.

The two-fluid planar jet, with A. Herczynski, APS Division of Fluid Dynamics, 50th Annual Meeting, San Francisco, CA, November 23-25, 1997.

Crystallization of non-Brownian spheres under horizontal shaking with O. Pouliquen and M. Nicolas, Los Alamos Days at Colorado: Complex Systems and Nonlinear Phenomena, University of Colorado, Boulder, CO, April 30 - May 2, 1998.

Similarity reductions in fluid mechanics, 13th Canadian Symposium on Fluid Dynamics, Simon Fraser University, Vancouver, British Columbia, Canada, May 28-31, 1998 (invited lecture).

Natural convection far downstream of a heat source on a solid wall, with F. J. Higuera, 27th International Symposium on Combustion, University of Colorado, Boulder, CO, August 2-7, 1998.

Oblique two-fluid stagnation-point flow, with B. Tilley, APS Division of Fluid Dynamics, 51st Annual Meeting, Philadelphia, PA, November 22-24, 1998.

Asymptotic estimates for 2-d sloshing modes: Theory and experiment, with A. M. J. Davis, Proceedings of Interfaces for the Twenty-First Century, meeting held in honor of the 60th birthday of Steven H. Davis, Monterey, CA, August 16-18, 1999.

Asymptotic estimates for 2-d sloshing modes: Theory and experiment, with A. M. J. Davis, APS Division of Fluid Dynamics, 52nd Annual Meeting, New Orleans, LA, November 21-23, 1999.

Secondary flow due to the interaction of two rotating spheres, with K. Buehler, APS Division of Fluid Dynamics, 52nd Annual Meeting, New Orleans, LA, November 21-23, 1999.

Analytic solutions for convection regime flow in a differentially heated vertical slot with variable mass flux, APS Division of Fluid Dynamics, 53rd Annual Meeting, Washington, D. C., November 19-21, 2000.

Oscillations of a sphere settling through a non-Newtonian fluid, with B. Roberts, APS Division of Fluid Dynamics, 53rd Annual Meeting, Washington, D. C., November 19-21, 2000.

Unexpected behavior of a sphere falling through a tube containing a non Newtonian fluid, 60th Birthday Symposium for Mikhail Rabinovich, Institute of Nonlinear Science, UCSD, San Diego, CA, April 20, 2001.

Longitudinal, transverse and spiral instability modes of a sphere settling through a vertical pipe filled with HPG, with B. Roberts and S. Eisen, International Conference dedicated to the 100th Anniversary of A. A. Andronov, Nizhny Novgorod, Russia, July 2-6, 2001.

Linear stability of radially heated Taylor Couette flow with radial gravity, with R. Tagg, 12th International Couette-Taylor Workshop, Evanston, IL, September 6-8, 2001.

Oblique radial stagnation flow on a circular cylinder, with V. Putkaradze, APS Division of Fluid Dynamics, 55th Annual Meeting, Dallas, TX, November 24-26, 2002.

Evolution of disturbances on separate pycnoclines, with M. Nitsche, APS Division of Fluid Dynamics, 55th Annual Meeting, Dallas, TX, November 24-26, 2002.

Navier Stokes- α equations: solutions and turbulent flow, with D. Holm, V. Putkaradze, and B. Wingate, APS Division of Fluid Dynamics, 55th Annual Meeting, Dallas, TX, November 24-26, 2002.

Linear stability of radially-heated Taylor Couette flow with radial gravity, with R. Tagg, APS Division of Fluid Dynamics, 55th Annual Meeting, Dallas, TX, November 24-26, 2002.

Oscillations of a liquid column trapping air in a vertical pipe, with I. Kliakhandler, APS Division of Fluid Dynamics, 55th Annual Meeting, Dallas, TX, November 24-26, 2002.

Evolution of disturbances on separate pycnoclines, with M. Nitsche, APS Division of Fluid Dynamics, 55th Annual Meeting, Dallas, TX, November 24-26, 2002.

Nonlinear oscillations in a capped liquid-air column, Rocky Mountain Workshop on Dynamics and Bifurcation of Patterns in Dissipative Systems, Colorado State University, Fort Collins, CO, May 19-22, 2003.

The Eiffel Tower: A tail of two exponentials, 40th Annual Meeting of the Society of Engineering Science, Ann Arbor, MI, October 12-15, 2003.

Nonlinear oscillations in a capped liquid-air column, International Symposium on Topical Problems of Nonlinear Wave Physics, Nizhny Novgorod, Russia, September 6-12, 2003 (invited lecture).

The Eiffel Tower: A tail of two exponentials, VIII Meeting on Recent Advances in the Physics of Fluids and its Applications, Tandil, Argentina, November 12-14, 2003 (invited lecture).

Moffatt vortices between concentric cones, with C. P. Malhotra and A. M. J. Davis, APS Division of Fluid Dynamics, 56th Annual Meeting, East Rutherford, New Jersey, November 23-25, 2003.

Stability of a fluid-saturated porous medium heated from below by forced convection, with K. Kubitschek, APS Division of Fluid Dynamics, 56th Annual Meeting, East Rutherford, New Jersey, November 23-25, 2003.

Experiments on conical beam waves in a rotating stratified fluid, with T. Peacock, APS Division of Fluid Dynamics, 56th Annual Meeting, East Rutherford, New Jersey, November 23-25, 2003.

Inverse Magnus force in free molecular flow, with A. Herczynski, APS Division of Fluid Dynamics, 56th Annual Meeting, East Rutherford, New Jersey, November 23-25, 2003.

The influence of rotation on conical beam waves in a stratified fluid, with T. Peacock, British Applied Mathematics Colloquium, University of East Anglia, Norwich, England, April 19-22, 2004.

The Eiffel Tower: A structural form molded by the wind, Hochbautechnik, ETH Zürich, Zürich, Switzerland, May 27, 2004.

The Eiffel Tower: A structural form molded by the wind, University of Aix-Marseille, Marseille, France, June 17, 2004.

Terminal motion of sliding and spinning disks with Coulomb friction, with C. Malhotra, APS Division of Fluid Dynamics, 57th Annual Meeting, Seattle, Washington, November 21-23, 2004.

Stability of a fluid-saturated porous medium contained in a vertical cylinder heated from below by forced convection, with D. Kubitschek, 57th Annual Meeting, Seattle, Washington, November 21-23, 2004.

Unusual features in multiparameter stability in the Taylor-Couette problem, with R. Tagg, 57th Annual Meeting, Seattle, Washington, November 21-23, 2004.

Multiple solutions of a boundary layer flow forced by external shear, with A. Davis and D. Kubitschek, 57th Annual Meeting, Seattle, Washington, November 21-23, 2004.

Stability of a rotating viscous liquid column in zero gravity, with J. Kubitschek, 57th Annual Meeting, Seattle, Washington, November 21-23, 2004.

Sloshing in suspended containers, APS Division of Fluid Dynamics, 58th Annual Meeting, Chicago, Illinois, November 20-22, 2005.

Evolution of disturbances on separate pycnoclines, with M. Nitsche, APS Division of Fluid Dynamics, 59th Annual Meeting, Tampa Bay, Florida, November 19-21, 2006.

Agglomeration of floating particles, with V. Putkaradze and D. Holm, APS Division of Fluid Dynamics, 59th Annual Meeting, Tampa Bay, Florida, November 19-21, 2006.

Unusual results from stability computations for variations of the Taylor-Couette problem, with M. Nitsche, APS Division of Fluid Dynamics, 59th Annual Meeting, Tampa Bay, Florida, November 19-21, 2006.

SEMINARS AND TECHNICAL PRESENTATIONS

Applied Mechanics Seminar, University of Southern California, Los Angeles, CA 1969.

Fluid Dynamics Colloquium, Max-Planck Institute, Gottingen, West Germany 1972.

Mechanical and Aerospace Studies Seminar, University of Rochester, Rochester, NY 1972.

Chemical Engineering Seminar, Ohio State University, Columbus, OH 1972.

Applied Mathematics Seminar, MIT, Cambridge, MA 1973.

Structures and Mechanics Seminar, University of California, Los Angeles, CA 1973.

Fluid Mechanics Seminar, CalTech, Pasadena, CA 1974.

Applied Mechanics Seminar, University of Southern California, Los Angeles, CA 1976.

IGPP Seminar, Scripps Institute of Oceanography, La Jolla, CA 1977.

AMES Seminar, University of California, San Diego, CA 1979.

Fluid Mechanics Seminar, CALTECH, Pasadena, CA 1980.

Seminar, Institute for Nonlinear Dynamics, La Jolla, CA 1981.

Mechanical Engineering Seminar, University of Colorado, Boulder, CO 1981.

Seminar, National Center for Atmospheric Research, Boulder, CO 1981.

Astro-Geophysics Seminar, University of Colorado, Boulder, CO 1981.

Chemical Engineering Seminar, University of Colorado, Boulder, CO 1982.

Mechanical Engineering Seminar, University of Wyoming, Laramie, WY 1983.

Mechanical Engineering Seminar, University of Colorado, Boulder, CO 1984.

Mechanical Engineering Seminar, University of Wyoming, Laramie, WY 1985.

Physics Seminar, University of California, Los Angeles, CA 1986.

Chemical Engineering Seminar, CALTECH, Pasadena, CA 1986.

Mechanical Engineering Seminar, University of Wyoming, Laramie, WY 1987.

Chemical Engineering Seminar, University of Colorado, Boulder, CO 1987.

Mechanical Engineering Seminar, University of Colorado, Boulder, CO 1987.

Materials Science Seminar, NASA Lewis Research Center, Cleveland, OH 1988.

Combustion Research Seminar, University of Colorado, Boulder, CO 1989.

Computational Fluid Dynamics Seminar, MIT, Cambridge, MA 1989.

Mathematics and Physics Seminar, University of East Anglia, Norwich, England 1989.

Dynamical Systems Seminar, University of Oxford, Clarendon Lab, Oxford, England 1989.

Applied Mathematics Seminar, University of Bristol, Bristol, England 1989.

Fluid Mechanics Seminar, DAMTP, University of Cambridge, Cambridge, England 1989.

Applied Mathematics Seminar, University of Leeds, Leeds, England 1989.

Mathematics and Computation Seminar, Universidad de Valladolid, Valladolid, Spain 1990.

Fluid Mechanics Seminar, ETS Ingenieros Aeronauticos, Madrid, Spain 1990.

Electronics and Electromagnetism Seminar, Universidad de Sevilla, Sevilla, Spain 1990.

Fluid Mechanics Seminar, ETS Ingenieros Industriales, Madrid, Spain 1990.

Seminar, Institute of Applied Physics of the Russian Academy of Science, Nizny Novgorod, USSR 1991.

Fluid Dynamics Seminar, Applied Mechanics and Engineering Science, UCSD, La Jolla, CA 1992.

Joint Physics/INLS Colloquium, Institute for Nonlinear Sciences, UCSD, La Jolla, CA 1992.

Joint Mechanical/Aerospace Engineering Seminar, USC, Los Angeles, CA, 1993.

Fluid Mechanics Seminar, Aeronautical Engineering Department, CALTECH, Pasadena, CA, 1993.

Fluid Mechanics Seminar, ETS Ingenieros Aeronauticos, Madrid, Spain, 1993.

Computational Fluids Seminar, Institute de Mecanique de Marseille, Marseille, France, 1993.

Mathematics Seminar, Romanian Academy of Applied Mathematics, Bucharest, Romania, 1993.

Mathematics Colloquium, University of Bristol, Bristol, England, 1993.

Applied Mathematics Seminar, University of Leeds, Leeds, England, 1993.

Applied Mathematics Colloquium, University of Colorado, Boulder, CO 1993.

Mathematics Seminar, Pennsylvania State University, College Station, PA 1994.

Nonlinear & Nonequilibrium Physics Seminar, Institute for Nonlinear Sciences, La Jolla, CA 1994.

Mathematics Seminar, Pennsylvania State University, College Station, PA 1994.

Hydrophysics Seminar 1 and 2, Institute of Applied Physics, Nizny Novgorod, Russia, 1996.

Fluids Dynamics Seminar, LadHyX, Ecole Polytechnique, Palaiseau, France, 1996.

Fluid Mechanics Seminar, Universite de Paris VI, Paris, France, 1997.

Mechanics and Power Seminar, Universite de Paris, Campus d'Orsay, Orsay, France, 1997.

Mathematics and Physics Seminar, University of East Anglia, Norwich, England, 1997.

Fluid Mechanics Seminar, DAMTP, University of Cambridge, Cambridge, England, 1997.

Applied Mathematics Seminar, University of Leeds, Leeds, England 1997.

Applied Mathematics Seminar, University of Reading, Reading, England 1997.

Fluid Mechanics Seminar, Insitute de Turbulence, Marseille, France 1997.

Seminar, Department of Applied Physics, Polytechnic University of Catalunya, Barcelona, Spain 1997.

Fluid Mechanics and Applied Mathematics Seminar, E.T.S.I. Aeronauticos, Madrid, Spain 1997.

Colloquium, Department of Applied Mathematics, University of Colorado, Boulder, CO 1997.

Seminar, Department of Theoretical and Applied Mechanics, University of Illinois, Urbana, IL, 1998.

Seminar, Division of Engineering and Applied Sciences, Harvard University, Cambridge, MA, 1998.

Colloquium, Department of Mathematics and Statistics, Arizona State University, Tempe, AZ, 1999.

Seminar, Applied Mathematics & Engineering, University of New Mexico, Albuquerque, NM, 2000.

Seminar for the Institute des Recherche de Phenomenen hors de Equilibrie, Marseille, France, 2001.

Mathematics Seminar, Michigan Technological University, Houghton, MI 2002.

Applied Mathematics Colloquium, University of Colorado, Boulder, CO 2002.

Applied Mathematics Seminar, Memorial University, St. John's, Newfoundland, Canada 2002.

Dynamical Systems Seminar, Applied Mathematics Department, University of Colorado, Boulder, CO 2002.

Seminar, Department of Mechanical Engineering, MIT, Boston, MA 2003.

Seminar, Department of Mathematics, Pennsylvania State University, State College, PA 2003.

Seminar, Department of Applied Math and Statistics, U. New Mexico, Albuquerque, NM 2003.

Pritchard Seminar, Department of Mathematics, Pennsylvania State University, State College, PA 2003.

Seminar, Department of Applied Math and Statistics, U. New Mexico, Albuquerque, NM 2004.

Seminar, Institute of Nonlinear Sciences, UCSD, Ja Jolla, CA 2005.

Control and Dynamical Systems Seminar, CalTech, Pasadena, CA 2005.

GALCIT Fluid Mechanics Seminar, CalTech, Pasadena, CA 2005.

Mechanical Engineering Seminar I, Isfahan University of Technology, Isfahan, Iran 2005.

Mechanical Engineering Seminar II, Isfahan University of Technology, Isfahan, Iran 2005.

Colloquium, Department of Mathematical and Computer Sciences, School of Mines, Golden, CO 2006.

Colloquium, Department of Mathematics, University of Wyoming, Laramie, WY 2006.

Seminar, Mathematics Department, Colorado State University, Fort Collins, CO 2006.

Seminar, School of Natural Sciences, University of California, Merced, CA 2006.

Seminar, Department of Mathematics and Statistics, University of New Mexico, Albuquerque, NM 2006.

Dynamics Seminar, Department of Mathematics, University of Colorado, Boulder, CO 2006.

Colloquium, Department of Physics, Boston College, Boston, MA 2006.

Colloquium, Department of Engineering and Applied Science, Harvard University, Cambridge, MA 2006.

Seminar, Department of Mathematics, University of Alabama, Tuscaloosa, AL 2006.

Applied Mechanics Seminar, Cornell University, Ithaca, NY 2006.

Physics Seminar, University of Cologne, Cologne, Germany, 2006.

MASTERS AND DOCTORAL THESES

“Instability of natural convection in a tall annulus,” G. Mehrdadtehranfar, M.S., July 1983.

“Stokes drag on hollow cylinders and conglomerates,” I. A. Lasso, M.S., May 1986.

“Mass transfer in sphere packed parallel passages,” P. M. Norton, M.S., August 1986.

“Prediction of off-design operation of a centrifugal pump,” S. Patra, M.S., July 1988.

“Stability of Taylor-Couette flow with radial heating,” M. Ali, PhD, November 1988.

“Ocean wave detection using satellite altimetry,” B. M. Dayyani, PhD, April 1992.

“Instability of rigidly rotating immiscible fluids in zero gravity,” M. Goto, M.S., August 1992.

“Radial stagnation flow on a rotating cylinder with suction and blowing,” G. Cunning, M.S., October 1995.

“The effect of viscosity on the stability of a uniformly rotating liquid column, J. P. Kubitschek, PhD, December 2006.