C. DAVID ANDERECK

Academic Positions:

Senior Associate Dean, College of Mathematical and Physical Sciences, OSU (2003 to present)
Interim Dean, College of Mathematical and Physical Sciences, OSU (July, 2003)
Associate Dean of the College of Mathematical and Physical Sciences, OSU (1997 to 2003)
Professor of Physics, OSU (1996 to present)
Vice Chair for Undergraduate Studies in Physics (1989-1992)
Associate Professor of Physics, OSU (1989-1996)
Assistant Professor of Physics, OSU (1983-1989)
Postdoctoral Research Associate, University of Texas (1980-83) Harry Swinney, advisor

Education:

Southwest Missouri State University, Springfield, Missouri
B.S. in Physics (Summa Cum Laude), May, 1974
Rutgers University, New Brunswick, New Jersey
Ph.D. in Physics, October 1980, William I. Glaberson, Advisor
Dissertation: "An Investigation of Tkachenko Waves in Rotating He II"

Selected Awards:

Graduate School Fellowship 1978-79 Rutgers Univ.
RCA Fellowship 1979-80 Rutgers Univ.
ONR Young Investigator Award 1985-88 Ohio State Univ.

Seminars, Colloquia and Invited Lectures at Conferences:

Spring Meeting of the APS, Baltimore, Maryland, May 1989; Aspen Center for Physics Workshop, August 1989; Laboratory of Hydrodynamics, ESPCI, Paris, January 1990; University of Michigan-Dearborn, November 1991; Kent State University, February 1992; Case Western Reserve University, February 1992; Gordon Research Conference on Organic Thin Films, February 1992; University of California-Santa Barbara, February 1992; Conference on Nonlinear Problems of Hydrodynamic Stability Theory, Moscow, Russia, March 1992; Spring Meeting of the APS, Washington, April 1992; AMS-IMS-SIAM Conference on Analysis of Multi-Fluid Flows and Interfacial Instabilities, Seattle, July, 1995; Third Microgravity Fluid Physics Conference, NASA, Cleveland, June, 1996; Chandrasekhar Memorial Symposium, Society of Engineering Science Annual Technical Meeting, Tempe, October, 1996.

Selected Publications:

1. "Flow Regimes in a Circular Couette System with Independently Rotating Cylinders." C. D. Andereck, S. S. Liu and H. L. Swinney. *J. Fluid Mech.* **164**, 155 (1986).
2. "Transitions in Convection Driven by a Horizontal Temperature Gradient." M-C. Hung and C. D. Andereck. *Phys. Lett. A* **132**, 253 (1988).
3. ABiological Scattering Particles for Laser Doppler Velocimetry.@ D. A. Jacobs, C. W. Jacobs, and C. D. Andereck, *Phys. Fluids* **31**, 3457 (1988).
4. "Subharmonic Transitions in Convection in a Moderately Shallow Cavity." M-C. Hung and C.D. Andereck. In *Numerical Simulation of Oscillatory Convection in Low-Pr Fluids*, B. Roux, ed. *Notes on Numerical Fluid Mechanics*, Vol. 27 (Vieweg, 1989), p. 338.
5. "Convection in a Shallow Cavity." T. M. Wang, S. A. Korpela, M-C. Hung and C. D. Andereck. In *Numerical Simulation of Oscillatory Convection in Low-Pr Fluids*, B. Roux, ed., *Notes on Numerical Fluid Mechanics*, Vol. 27 (Vieweg, 1989), p. 344.
6. "Phase Dynamics of Wavy Vortex Flow." M. Wu and C. D. Andereck, *Phys. Rev. Lett.* **67**, 1258 (1991).

7. "The Phase Dynamics of Turbulent Taylor Vortex Flow." M. Wu, C. D. Andereck and H. R. Brand, *Europhys. Lett.* **19**, 587 (1992).
8. "Phase Dynamics in the Taylor-Couette System." M. Wu and C. D. Andereck, *Phys. Fluids A* **4**, 2432(1992).
9. *Ordered and Turbulent Patterns in Taylor-Couette Flow*, ed. by C. D. Andereck and F. Hayot, eds., (Plenum, New York, 1992).
10. "Bifurcations From Taylor Vortices Between Corotating Concentric Cylinders." J.J. Hegseth, G.W. Baxter and C. D. Andereck, *Phys. Rev. E* **53**, 507 (1996).
11. "Transition to Weak Turbulence via Spatiotemporal Intermittency in the Taylor-Dean System." M. M. Degen, I. Mutabazi and C. D. Andereck, *Phys. Rev. E* **53**, 3495 (1996).
12. "Temporal Modulation of Traveling Waves in the Flow Between Rotating Cylinders With Broken Azimuthal Symmetry." S.G.K. Tennakoon, C.D. Andereck, J.J. Hegseth and H. Riecke, *Phys. Rev. E* **54**, 5053 (1996).
13. "Observations of Time-Dependent Behavior in the Two-Layer Rayleigh-Bénard System." C.D. Andereck, P.W. Colovas and M.M. Degen, *Advances in Multi-Fluid Flows*, Eds. Y.Y. Renardy, A.V. Coward, D.T. Papageorgiou and S.-M. Sun (SIAM, Philadelphia, 1996), 3.
14. "Observations of Time-Dependent Behavior in the Two-Layer Rayleigh-Bénard System." C.D. Andereck, P.W. Colovas and M.M. Degen, *Proceedings of the Third Microgravity Fluid Physics Conference*, NASA Conference Publication 3338, B. S. Singh, Conference Organizer (NASA, Cleveland, 1996), 313.
15. "Spatio-Temporal Intermittency in the Counter-Rotating Taylor-Couette System," P. W. Colovas and C. D. Andereck, *Physical Review E* 55, 2736 (1997).
16. "Pulsed Flow Between Two Concentric Rotating Cylinders," S. G. K. Tennakoon, C. D. Andereck, C. Normand and A. Aouidef, *European Journal of Mechanics/B Fluids* 16, 227 (1997).
17. "Time-Dependent States in the Weissenberg Effect," M. M. Degen, W. H. Kahle and C. D. Andereck, *Physical Review E* 57, 1761 (1998).
18. "Time-Dependent Patterns in the Two-Layer Rayleigh-Bénard System," M. M. Degen, P. W. Colovas and C. D.Andereck, *Physical Review E* 57, 6647 (1998).
19. "Instabilities in Two-Layer Rayleigh-Bénard Convection: Overview and Outlook," C. D. Andereck, P. W. Colovas, M. M. Degen and Y. Y. Renardy, *International Journal of Engineering Science* 36, 1451 (1998).
20. "Ultrasound Thermal Imaging (UTI) of Convecting Opaque Fluids," H. Xu, S. Fife and C. D. Andereck, *Eurotherm Seminar 71 Proceedings*: *Visualization, Imaging and Data Analysis in Convective Heat and Mass Transfer*, editors C. Padet and H. Burkhardt, (Presses Universitaires de Reims, Reims, France, 2003), 331-336.
21. "Ultrasound Thermometry in Transparent and Opaque Fluids," S. Fife, S. Rahal, and C. D. Andereck, *Experiments in Fluids* 35, 152-158 (2003).
22. "Localized intermittent short-wavelength bursts in the high-radius ratio limit of the Taylor-Couette system," C. S. Carey, A. B. Schlender and C. D. Andereck, *Physical Review E* 75, 016303 (2007).
23. "Ultrasound Thermometry in Transparent and Opaque Fluids II: Two-Dimensional Imaging and Flow State Transitions in Mercury," H. Xu, S. Mikhail and C. D. Andereck, in preparation.
24. "New Time-Dependent Flows in Two-Layer Convection," J. Welton, M. Stephens, and C. D. Andereck, in preparation.
25. "Pattern Formation in Convection of Water Near Its Maximum Density Point," E. Large and C. D. Andereck, in preparation.

Most Recent External Funding:

"Investigations of Multiple-Layer Convection" NASA, 1994-1997 $100,000

"Ultrasound Thermal Field Imaging of Opaque Fluids," NASA, 1997-2004 $360,000