

Daniel D. Joseph
Regents' Professor

Department of Aerospace Engineering and Mechanics, University of Minnesota
107 Akerman Hall, 110 Union Street SE, Minneapolis, MN 55455
phone (612) 625-0309; fax (612) 626-1558; email: *joseph@aem.umn.edu*

Birthdate and Place

March 26, 1929, Chicago, Illinois

Education

1950 M.A., Sociology	University of Chicago
1959 B.S., Mechanical Engineering	Illinois Institute of Technology
1960 M.S., Mechanics	Illinois Institute of Technology
1963 Ph.D., Mechanical Engineering	Illinois Institute of Technology

Employment

1962 Assistant Professor, Mechanical Engineering	Illinois Institute of Technology
1963 Assistant Professor, Aerospace Engineering and Mechanics	University of Minnesota
1965 Associate Professor, Aerospace Engineering and Mechanics	University of Minnesota
1968 Professor, Aerospace Engineering and Mechanics	University of Minnesota
1991-2001 Russell J. Penrose Professor of Aerospace Eng. & Mech.	University of Minnesota
1994 Regents' Professor	University of Minnesota

Visiting Positions

Visiting Professor of Mathematics, University of Sussex, Brighton, England, Summer & Fall 1973.

Visiting Professor of Applied Mathematics, Department of Mathematics, University of Melbourne, Australia, January 1975.

Visiting Professor of Mathematics, University of Nice and University of Naples, Fall 1976.

Visiting Scientist, Institut des Hautes Etudes, Bur-sur-Yvette, France, October–November 1980.

Visiting Professor of Mathematics, University of Paris and University of Nice, 1980–1981.

Visiting CNR Professor in Mathematical Physics, Naples, January, 1983.

Visiting Professor of Aeronautical Engineering, University of Rome, Fall 1985.

Visiting Professor of Applied Mathematics, Weizmann Institute, Rehovoth, Israel, December 1989–January 1990

Visiting Professor of Mathematics, University of Paris at Orsay, September–October 1990.

Distinguished Adjunct Professor. University of California, IRVINE, one month winters 2004, 2005–present

Honors and Awards

Guggenheim Fellow, 1969–70

National Academy of Engineering, 1990

G. I. Taylor Medalist, Society of Engineering Science, 1990

National Academy of Sciences, 1991
Distinguished Service Award, US Army CRDEC, 1992
G.I. Taylor Lecturer, Cambridge Phil. Soc., Jan 1992
Aris Phillips Lecturer, Yale University, April 1992
American Academy of Arts and Sciences, April 1993
Schlumberger Foundation Award, July 1993
Bingham Medalist of the Society of Rheology, October 1993
Fellow of the American Physical Society, November 1993
Timoshenko Medalist of the ASME, May 1995
Croco Lecturer, Princeton University, Mechanical Engineering, October 1995
Thomas Baron Fluid-Particle Systems Award of the AIChE and Shell. Nov. 1996
Illinois Institute of Technology Professional Achievement Award 1997
University of Illinois Professional Achievement Award 1999
Kovaszny Lecturer, University of Houston, Mechanical Engineering, April 1999
Professional Achievement Citation of the University of Chicago, June 1999
Fluid Dynamics Prize of the APS, Nov 1999
Listed in Thompson Scientific-ISI's Highly Cited Researchers™ 2002
Honorary Symposium on Multi-Component and Multi-Phase Fluid Dynamics, in conjunction with the Fourteenth U. S. National Congress of Theoretical and Applied Mechanics, June 22-28, 2002, in Blacksburg, VA.
Ohanian Lecture Series, University of Florida, Mechanical Engineering, March 2003.
Honorary Professor at Xi'an Jiaotong University, March 2004
Distinguished Speaker at the PIMS/Syncrude Lecture Series, June 4, 2004
Mechanical, Material & Aerospace Eng. Illinois Institute of Technology 2004 Alumni Recognition Award
Distinguished Adjunct Professor. University of California IRVINE, one month winters 2004, 2005-present

Patents

US Patent 4,602,502, Wave-speed meter, 1986, D.D. Joseph, O. Riccius. This device is to be used to measure wave speeds and to determine the effective rigidity of a liquid.
US Patent 4,644,782, Spinning rod interfacial tensiometer, 1987, D.D. Joseph. This device is used to determine the interfacial tension between immiscible liquids.
US Patent 5,150,607, Spinning drop tensioextensiometer, 1992, D.D. Joseph, D.A Hultman. This device is used for polymer blends and in the oil industry where temperature is important.
US Patent 5,301,541, Drag determining apparatus, 1994, D.D. Joseph, F.J. Marentic, C.A. Nelson. Device and method for determining drag on surfaces.
US Patent 5,385,175, Conduit having hydrophilic and oleophobic inner surfaces for oil transportation, 1995, M. Rivero, V. Rodriguez, D.D. Joseph, E. Guevara, N. Carabano. Method for preventing fouling of pipe walls for lubricated transport.
US Patent 5,646,352, Method and apparatus for measuring a parameter of a multiphase flow, 1997, D.D. Joseph, R. Bai.
US Patent 5,922,190, Process for suppressing foam formation in a bubble column reactor, 1999, J. Guitian, D.D. Joseph, J. Krasuk.
US Patent 5,922,191, Foam control using a fluidized bed of particles, 1999, C. Mata, J. Guitian, D.D. Joseph, J. Krasuk.

US Patent 5,987,969, Apparatus and method for determining dynamic stability of emulsions, 1999, D.D. Joseph, G. McGrath, G. Nunez, P.J. Ortega.

US Patent 5,988,198, Process for pumping bitumen froth through a pipeline, 1999, O. Nieman, K. Sury, D.D. Joseph, R. Bai, C. Grant.

Reference List:

320. P. Singh and D.D. Joseph 2005. Fluid dynamics of floating particles, *J. Fluid Mech.*, **530**, 31-80.
321. J. Wang and D.D. Joseph 2003. Lift forces on a cylindrical particle in plane Poiseuille flow of shear thinning fluids, *Phys. Fluids.*, **18**(8), 2267-2278.
322. T. Min, J.Y. Yoo, H. Choi, D.D. Joseph 2003. Drag reduction by polymer additives in a turbulent channel flow, *J. Fluid Mech.* **486**, 213-238.
323. F. Garcia, R. Garcia, J.C. Padrino, C. Mata, J.L. Trallero, D.D. Joseph 2003. Power law and composite power law friction factor corrections for laminar and turbulent gas-liquid flow in horizontal pipelines. *Int. J. Multiphase Flow*, **29**(10), 1605-1629.
324. J. Wang, D.D. Joseph, 2003. Potential flow of a second order fluid over a sphere or an ellipse. *J. Fluid Mech.*, **511**, 201-215.
325. T. Funada, J. Wang, D.D. Joseph, 2005. Viscous potential flow analysis of stress induced cavitation of aperture flow. *Atomization and Sprays*, accepted.
326. T. Hesla, D.D. Joseph, 2004. The maximum contact angle at the rim of a heavy floating disk. *J. Colloid and Interface Sci.*, **279**, 186-191.
327. C. Ortiz, D.D. Joseph, G. Beavers, 2003. Acceleration of a liquid drop suddenly exposed to a high speed air stream. *Int. J. Multiphase Flow.*, **30**, 217-224.
328. S. Sanders, T. Ko, R. Bai, and D.D. Joseph, 2004. Factors governing friction losses in self-lubricated transport of bitumen froth: 1. Water release. *Can. J. Chem. Eng.*, **82**, 735-742
329. J. Wang, D.D. Joseph and T. Funada, 2004. Pressure corrections for potential flow analysis of capillary instability of viscous fluids. *J. Fluid Mech.*, **522**, 383-394.
330. T. Funada, D.D. Joseph and S. Yamashita, 2004. Stability of liquid jet into incompressible gasses and liquids. *Int. J. Multiphase Flow*, accepted.
331. T. Funada, D.D. Joseph and S. Yamashita, 2005. Liquid jet in a high Mach number air stream. Submitted.
332. T. Funada, D.D. Joseph, T. Maehara and S. Yamashita, 2005. Ellipsoidal model of the rise of a Taylor bubble in a round tube. *Int. J. Multiphase Flow*, accepted.
333. T. Funada, J. Wang and D.D. Joseph, 2005. Purely irrotational theories of the effects of viscosity and viscoelasticity on capillary instability of a liquid cylinder. *J. Non-Newtonian Fluid Mech.*, accepted.
334. J. Wang, D.D. Joseph and T. Funada, 2005. Viscous contributions to the pressure for potential flow analysis of capillary of two viscous fluids. *Phys. Fluids*, accepted.
335. B.H. Yang, J. Wang, D.D. Joseph, H.H. Hu, T.W. Pan, and R. Glowinski, 2005. Migration of a sphere in tube flow. *J. Fluid Mech.*, accepted.
336. F. Garcia, R. Garcia and D.D. Joseph, 2005. Composite power law holdup correlations in horizontal pipes. *Int. J. Multiphase Flow*, accepted.
337. J. Wang, R. Bai, and D.D. Joseph, 2004. Nanoparticle-laden tubeless and open siphons. *J. Fluid Mech.*, **516**, 335-348.
338. J. Wang, R. Bai, C. Lewandowski, G.P. Galdi, and D.D. Joseph, 2004. Sedimentation of

- Cylindrical Particles in a Viscoelastic Liquid: Shape-Tilting. *China Particuology*, **2**(1), 13-18.
339. D.D. Joseph, 2003. Opportunities for extracting correlations from numerical and real experiments using digital technology. *Multiphase Science and Technology*, **15**, 1-4.
340. D.D. Joseph, 2003. Critical Remarks about flow charting. *Multiphase Science and Technology*, **15**, 12.
341. F. Viana, T. Funada, D.D. Joseph, N. Tashiro & Y. Sonoda, 2005. Potential flow of a second-order fluid over a tri-axial ellipsoid. *J. App. Math.*, accepted.
342. D.D. Joseph, J. Wang & T. Funada, 2005. The motion of a spherical gas bubble in viscous potential flow. Submitted.
343. T. Funada, D.D. Joseph, S. Yamashita & M. Saitoh, 2005. Liquid jet in a high Mach number air stream. Submitted.
344. J. C. Padrino and D.D. Joseph, 2005. Numerical study of the steady state uniform flow past a rotating cylinder. Submitted.
345. J. Wang and D.D. Joseph, 2005. Pressure corrections for the effects of viscosity on the irrotational flow outside Prandtl's boundary layer.
346. J. Wang and D.D. Joseph, 2005. Boundary layer analysis for effects of viscosity of the irrotational flow on the flow induced by a rapidly rotating cylinder in a uniform stream. Submitted.
347. T. S. Lundgren and D.D. Joseph, 2005. Capillary Collapse and Rupture. Submitted.
348. J. C. Padrino, D.D. Joseph, T. Funada & J. Wang, 2005. Stress induced cavitation for the streaming motion of a viscous liquid past a sphere. Submitted.
349. J. Wang and D.D. Joseph, 2005. Purely irrotational theories of the effect of the viscosity on the decay of free gravity waves. In preparation.
350. T.W. Pan, R. Glowinski & D.D. Joseph, 2005. Simulating the dynamics of fluid-cylinder interactions. *J. of Zhejiang Univ. Science* **6A**(2), 97-109.
351. T.W. Pan, D.D. Joseph & R. Glowinski, 2005. Simulating the dynamics of fluid-ellipsoid interactions. *Computers and Structures*, **83**, 463-478.
352. B.H. Yang, J. Wang, D.D. Joseph, H.H. Hu, T.W. Pan & R. Glowinski, 2005. Numerical study of particle migration in tube and plane Poiseuille flows. Proceedings of IUTAM symposium on Computational Approaches to Disperse Multiphase Flows, Argonne, IL, Oct. 4-7.