

CURRICULUM VITAE
ANDREAS ACRIVOS
EINSTEIN PROFESSOR EMERITUS OF SCIENCE AND ENGINEERING
THE CITY COLLEGE OF THE CITY UNIVERSITY OF NEW YORK

I. Biography

- A. Born in Athens, Greece, June 13, 1928.
United States Citizenship, February, 1962.
Married.

B. Education

1. B.S. Syracuse University, 1950, Chemical Engineering
2. M.S., University of Minnesota, 1951, Chemical Engineering
3. Ph.D., University of Minnesota, 1954. Chemical Engineering. Dissertation: A Theoretical Discussion of Steady and Unsteady State Multicomponent Rectification Including a Treatment of Mixtures with an Indefinite Number of Components. Research Director: Professor N.R. Amundson.

C. Academic Experience

1. University of California, Berkeley, Department of Chemical Engineering Instructor, 1954-55, Assistant Professor, 1955-59, Associate Professor, 1959-62.
2. Stanford University, Department of Chemical Engineering, Professor, 1962-1988, Professor Emeritus, 1988-present.
3. The City College of the City University of New York, Albert Einstein Professor of Science and Engineering, 1988-2000
4. The City College of the City University of New York, Albert Einstein Professor of Science and Engineering Emeritus, 2000-present

D. Organizations

1. American Chemical Society (Member)
2. American Institute of Chemical Engineers (Fellow)
3. American Physical Society (Fellow)
4. Society of Rheology (Member)
5. U.S. National Academy of Engineering (Member)
6. Editor of The Physics of Fluids , (1982-1997).
7. Member, U.S. National Committee on Theoretical & Applied Mechanics(1980-2000),&(2004-) Chairman (1984-86).
8. IUTAM, Member Congress Committee (1984-2000); Member at Large (2004-).
9. U.S. National Academy of Sciences (Member).
10. American Academy of Arts and Sciences (Fellow).
11. The New York Academy of Sciences (Fellow).

E. Honors and Awards

1. Humble Oil Lecturer, 1959
2. Guggenheim Fellow, 1959.
3. PRF Unrestricted Research Award, Type C, 1962
4. A.P. Colburn Award, American Institute of Chemical Engineers, 1963.
5. American Chemical Society California Section Award, 1966.
6. ASEE Lectureship Award, 1967.
7. Professional Progress Award, American Institute of Chemical Engineers, 1968.
8. William N. Lacey Lecturer, California Institute of Technology, 1972.
9. Peter C. Reilly Lecturer, University of Notre Dame, 1972.
10. Kelly Lecturer, Purdue University, 1973.
11. Guggenheim Fellow, 1976.
12. Elected to the U.S. National Academy of Engineering, 1977.
13. Leon Lapidus Lecturer, Princeton University, 1980.
14. Elected Fellow, American Institute of Chemical Engineers, 1981.
15. Elected Fellow, American Physical Society, 1981.
16. Bicentennial Commemoration Lecturer, Louisiana State University, 1982.
17. Stanley Katz Memorial Lecturer, City College of CUNY, 1983.
18. Sherman Fairchild Distinguished Scholar, California Institute of Technology, 1983-84.
19. W.K. Lewis Lecturer, Massachusetts Institute of Technology, 1984.
20. Warren K. Lewis Award, American Institute of Chemical Engineers, 1984.
21. Distinguished Visiting Lecturer, University of Alberta, 1985.
22. G.I. Taylor Medal, Society of Engineering Science, 1988.
23. Fluid Dynamics Prize, American Physical Society, 1991.
24. Elected to the U.S. National Academy of Sciences, 1991.
25. Julian C. Smith Lecturer, Cornell University, 1992.
26. Robert L. Pigford Lecturer, University of Delaware, 1992.
27. Donald Gage Stevens Distinguished Lectureship Award, Syracuse University, 1992.
28. Berkeley Lecturer, University of California, 1993.
29. Honorary Doctor of Science, Syracuse University, 1993.
30. Elected Fellow of the American Academy of Arts and Sciences, 1993.
31. Ascher Shapiro Lecturer, Massachusetts Institute of Technology, 1994.
32. Bingham Medalist, Society of Rheology, 1994.
33. Elected Fellow of the New York Academy of Sciences, 1994.
34. Honorary Doctor of Science, Illinois Institute of Technology, 1995.
35. L.S.G. Kovasznay Distinguished Lecturer, University of Houston, 1997.
36. Honorary Doctor of Science, New Jersey Institute of Technology, 1998.
37. New York Mayor's Award for Excellence in Science and Technology, 1999.
38. Amundson Lecturer, University of Houston, 2000.
39. Honorary Doctor of Science, University of Minnesota, 2000.
40. Institute Lecturer, American Institute of Chemical Engineers, 2000.
41. Honorary Doctor of Science, City College of the City University of New York, 2002.
42. The 2001 National Medal of Science (presented at the White House on June 12, 2002).

43. Honorary Doctor of Science, University of Patras, 2003.
44. L.S. Doraiswamy Lecturer, Pune, India (2004) & Iowa State University (2005).
45. S.S. Penner Distinguished Lecturer, University of California @ San Diego (2005).
46. Honorary Doctor of Science, Clarkson University (2005).
47. One Hundred Chemical Engineers of the Modern Era, American Institute of Chemical Engineers (2008).
48. Elected corresponding member of the Academy of Athens (2011)

II. Publications - Andreas Acrivos

1. Acrivos, A. and Amundson, N.R. "Solution of Transient Stagewise Operations on an Analog Computer," *Ind. Eng. Chem.* **45**, 467 (1953).
2. "A Method of Determining the Roots of a Secular Determinant of Order m, by Means of the IBM 602-A Calculating Punch," *IBM Technical Newsletter* **44** (1953).
3. Acrivos, A. and Amundson, N.R. "On the Steady State Fractionation of Multicomponent and Complex Mixtures in an Ideal Cascade. Part 1. Analytic Solution of the Equations for General Mixtures," *Chem. Eng. Sci.* **4**, 29 (1955).
4. Acrivos, A. and Amundson, N.R. "Part 2. The Calculation of the Minimum Reflux Ratio," *Ibid.*, 68.
5. Acrivos, A. and Amundson, N.R. "Part 3. The Discussion of the Numerical Method of Calculation," *Ibid.*, 141.
6. Acrivos, A. and Amundson, N.R. "Part 4. The Calculation of the Minimum Reflux Ratio," *Ibid.*, 159.
7. Acrivos, A. and Amundson, N.R. "Part 5. The Extension to Packed Columns," *Ibid.*, 206.
8. Acrivos, A. and Amundson, N.R. "Part 6. The Effect of Variations of the Relative Volatilities, the Flow Rates and the Plate Efficiencies," *Ibid.*, 249.
9. Acrivos, A. and Amundson, N.R. "Applications of Matrix Mathematics to Chemical Engineering Problems," *Ind. Eng. Chem.* **47**, 1533 (1955).
10. Fenech, E.J. and Acrivos, A. "The Application of Linear Programming to Design Problems," *Chem. Eng. Sci.* **5**, 93 (1956).
11. "Method of Characteristics Technique. Application to Heat and Mass Transfer Problems," *Ind. Eng. Chem.* **48**, 703 (1956).
12. "Linear Programming: How Does it Work," *Chem. Eng.*, p. 215 (1956).

13. "The Transient Response to Stagewise Processes: Part I. The Stability of Steady-State in Stagewise Processes and Their Transient Behavior," J. Soc. Ind. Appl. Math. **4**, 1 (1955).
14. "Part 2. The Effect of Dead-Time Delays on the Stability of the Steady-State in Stagewise Processes and on Their Transient Behavior," *Ibid.*, 120.
15. Chambre, P.L. and Acrivos, A. "On Chemical Surface Reactions in Laminar Boundary Layer Flows," J. Appl. Phys. **27**, 1322 (1956).
16. Acrivos, A. and Chambre, P.L. "Laminar Boundary Layer Flows with Surface Reactions," Ind. Eng. Chem. **49**, 1025 (1957).
17. Gose, E.E., Petersen, E.E. and Acrivos, A. "On the Rate of Heat Transfer in Liquids with Gas Injection Through the Boundary Layer," J. Appl. Phys. **28**, 1509 (1956).
18. "On the Rate of Mass Transfer from a Gas to a Moving Liquid Film," Chem. Eng. Sci. **9**, 242 (1958).
19. "Combined Laminar Free and Forced Convection Heat Transfer in External Flows," AIChE J. **4**, 285 (1958).
20. Acrivos, A., Babcock, B.D. and Pigford, R.L. "Flow Distribution in Manifolds," Chem. Eng. Sci. **10**, 112 (1959).
21. Knott, R.F., Anderson, R.N., Acrivos, A. and Petersen, E.E. "An Experimental Study of Heat Transfer to Nitrogen-Oil Mixtures," Ind. Eng. Chem. **51**, 1369 (1959).
22. Wilke, C.R., Prausnitz, J.M. and Acrivos, A. "Mass Transfer," Ind. Eng. Chem. **51**, 466 (1959).
23. "A Rapid Method for Estimating the Shear Stress and the Separation Point in Laminar Incompressible Boundary Layer Flows," Aero/Space Sciences J. **27**, 314 (1960).
24. Acrivos, A., Shah, M.J. and Petersen, E.E. "On the Flow of a Non-Newtonian Liquid on a Rotating Disk," J. Appl. Phys. **31**, 963 (1960).
25. "On the Response of Stagewise Processes to Stationary Randomly Fluctuating Inputs," Chem. Eng. Sci. **12**, 279 (1960).
26. Acrivos, A., Shah, M.J. and Petersen, E.E. "Momentum and Heat Transfer in Laminar Boundary Layer Flows of Non-Newtonian Fluids Past External Surfaces," AIChE J. **6**, 312 (1960).
27. Wilde, D.J. and Acrivos, A. "Short-Range Production Planning of Continuous Operations," Chem. Eng. Sci. **12**, 175 (1960).

28. "On the Combined Effect of Longitudinal Diffusion and External Mass Transfer Resistance in Fixed Bed Operations," Chem. Eng. Sci. **13**, 1 (1960).
29. "Solution of the Laminar Boundary Layer Energy Equation at High Prandtl Numbers," Phys. Fluids **3**, 657 (1960).
30. Wilke, C.R., Prausnitz, J.M. and Acrivos, A. "Mass Transfer," Ind. Eng. Chem. **52**, 441 (1960).
31. "Mass Transfer in Laminar Boundary Layer Flows with Finite Interfacial Velocities." AIChE J. **6**, 410 (1960).
32. Wilde, D.J. and Acrivos, A. "Minimization of a Piecewise Quadratic Function Arising in Production Scheduling," Operations Res. **8**, 652 (1960).
33. "On Laminar Boundary Layer Flows with a Rapid Homogeneous Chemical Reaction," Chem. Eng. Sci. **13**, 57 (1960).
34. "A Theoretical Analysis of Laminar Natural Convection Heat Transfer to Non-Newtonian Fluids," AIChE J. **6**, 584 (1960).
35. Wilke, C.R., Prausnitz, J.M., Acrivos, A., Petersen, E.E., and Olander, D.R. "Mass Transfer," Ind. Eng. Chem. **53**, 925 (1961).
36. "The Asymptotic Form of the Laminar Boundary Layer Mass Transfer Rate for Large Interfacial Velocities," J. Fluid Mech. **12**, 337 (1962).
37. Acrivos, A. and Taylor, T.D. "Heat and Mass Transfer from Single Spheres in Stokes Flows," Phys. Fluids **5**, 387 (1962).
38. "On the Solution of the Convection Equation in Laminar Boundary Layer Flows," Chem. Eng. Sci. **17**, 457 (1962).
39. Shah, M.J., Petersen, E.E. and Acrivos, A. "Heat Transfer from a Cylinder to a Power-Law Non-Newtonian Fluid," AIChE J. **8**, 542 (1962).
40. Wilde, D.J. and Acrivos, A. "Compromise Control of Over-determined Systems," AIChE J. **8**, 629 (1962).
41. Bowen, J.R., Acrivos, A. and Oppenheim, A.K. "Singular Perturbation Refinement to Quasi-Steady State Approximation in Chemical Kinetics," Chem. Eng. Sci. **18**, 177 (1963).
42. Shair, F.H., Grove, A.S., Petersen, E.E. and Acrivos, A. "The Effect of Confining Walls on the Stability of the Steady Wake Behind a Circular Cylinder," J. Fluid Mech. **17**, 546 (1963).

43. Acrivos, A. and Taylor, T.D. "The Stokes Flow Past an Arbitrary Particle," Chem. Eng. Sci. **19**, 445 (1964).
44. Taylor, T.D. and Acrivos, A. "On the Deformation and Drag of Falling Viscous Drop at Low Reynolds Number," J. Fluid Mech. **18**, 466 (1964).
45. Grove, A.S., Shair, F.H., Petersen, E.E. and Acrivos, A. "An Experimental Investigation of the Steady Separated Flow Past a Circular Cylinder," J. Fluid Mech. **19**, 60 (1964).
46. Grove, A.S., Petersen, E.E. and Acrivos, A. "Velocity Distribution in the Laminar Wake of a Parallel Flat Plate," Phys. Fluids **7**, 1071 (1964).
47. Acrivos, A., Snowden, D.D., Grove, A.S. and Petersen, E.E. "The Steady Separated Flow Past A Circular Cylinder at Large Reynolds Numbers," J. Fluid Mech. **21**, 737 (1965).
48. Acrivos, A., Shah, M.J. and Petersen, E.E. "On the Solution of the Two-Dimensional Boundary-Layer Flow Equations for a Non-Newtonian Power-Law Fluid," Chem. Eng. Sci. **20**, 101 (1965).
49. Berg, J.C. and Acrivos, A. "The Effect of Surface Active Agents on Convection Cells Induced by Surface Tension," Chem. Eng. Sci. **20**, 737 (1965).
50. Acrivos, A. and Goddard, J.D. "Asymptotic Expansions for Laminar Forced Convection Heat and Mass Transfer. Part I. Low Speed Flows," J. Fluid Mech. **23**, 273 (1965).
51. Goddard, J.B. and Acrivos, A. "Asymptotic Expansions for Laminar Forced-Convection Heat and Mass Transfer. Part II. Boundary Layer Flows," J. Fluid Mech. **24**, 339 (1966).
52. Berg, J.C., Boudart, M. and Acrivos, A. "Natural Convection Pools of Evaporating Liquids," J. Fluid Mech. **24**, 721 (1966).
53. "On the Combined Effect of Forced and Free Convection Heat Transfer in Laminar Boundary Layer Flows," Chem. Eng. Sci. **21**, 343 (1966).
54. Hall, K.R., Eagleton, L.C., Acrivos, A. and Vermeulen, T. "Pore-and-Solid-Diffusion Kinetics in Fixed-Bed Absorption Under Constant-Pattern Conditions," I and EC Fundamentals **5**, 212 (1966).
55. Vidal, A. and Acrivos, A. "Nature of the Neutral State in Surface-Tension Driven Convection," Phys. Fluids **9**, 615 (1966).
56. Davis, R.E. and Acrivos, A. "The Influence of Surfactants on the Creeping Motion of Bubbles," Chem. Eng. Sci. **21**, 681 (1966).
57. Berg, J. C., Boudart, M. and Acrivos, A. "Evaporative Convection," Adv. Chem. Eng. **6**, 61 (1966).

58. Vidal, A. and Acrivos, A. "The Influence of Coriolis Force on Surface-Tension-Driven-Convection", *J.Fluid Mech.* **26**, 807 (1966).
59. Goddard, J.D. and Acrivos, A. "An Analysis of Laminar Forced-Convection Mass Transfer with Homogeneous Chemical Reaction," *Quart. J. Mech. and Appl. Math.* **20**, 471 (1967).
60. Pan, F. and Acrivos, A. "Steady Flows in Rectangular Cavities," *J. Fluid Mech.* **28**, 643 (1967).
61. Davis, R.E. and Acrivos, A. "Solitary Internal Waves in Deep Water," *J. Fluid Mech.* **29**, 593 (1967).
62. Frankel, N.A. and Acrivos, A. "On the Viscosity of a Concentrated Suspension of Solid Spheres," *Chem. Eng. Sci.* **22**, 847 (1967).
63. Anshus, B.E. and Acrivos, A. "The Effect of Surface Active Agents on the Stability Characteristics of Falling Liquid Films," *Chem. Eng. Sci.* **22**, 389 (1967).
64. Davis, R.E. and Acrivos, A. "The Stability of Oscillatory Internal Waves," *J. Fluid Mech.* **30**,723 (1967).
65. Vidal, A. and Acrivos, A. "The Effect of Nonlinear Temperature Profiles on the Outset of Convection Driven by Surface Tension Gradients," *I and EC Fund.* **7**, 53 (1968).
66. Pan, F. and Acrivos, A. "Heat Transfer at High Peclet Number in Regions of Closed Streamlines," *Int. J. of Heat Mass Transf.* **11**, 439 (1968).
67. Pan, F. and Acrivos, A. "Shape of a Drop or Bubble at Low Reynolds Number," *I and EC Fund.* **7**, 227 (1968).
68. Acrivos, A., Leal, L.G., Snowden, D.D. and Pan, F. "Further Experiments on Steady Separated Flows Past Bluff Objects," *J. Fluid Mech.* **34**, 25 (1968).
69. Frankel, N.A. and Acrivos, A. "Heat and Mass Transfer from Small Spheres and Cylinders Freely Suspended in Shear Flow," *Phys. Fluids* **11**, 1913 (1968).
70. Liang, S.F., Vidal, A. and Acrivos, A. "Buoyancy Driven-Convection in Cylindrical Geometries," *J. Fluid Mech.* **36**, 239 (1969).
71. Johnson, A.R. and Acrivos, A. "Concentration Polarization in Reverse Osmosis Under Natural Convection," *I and EC Fund.* **8**, 359 (1969).
72. Leal, L.G. and Acrivos, A. "Structure of Steady Closed Streamline Flows Within a Boundary Layer," *Phys. Fluids, Suppl.* **II**, 105 (1969).

73. Leal, L.G. and Acrivos, A. "The Effect of Base Bleed on the Steady Separated Flow Past Bluff Objects," *J. Fluid Mech.* **39**, 735 (1969).
74. Hoard, C.Q., Robertson, C.R. and Acrivos, A. "Experiments on the Cellular Structure in Benard Convection," *Int. J. Heat and Mass Transf.* **13**, 849 (1970).
75. Liang, S.F. and Acrivos, A. "Stability of Buoyancy-Driven Convection in a Tilted Slot," *Int. J. Heat and Mass Transf.* **13**, 449 (1970).
76. Robertson, C.R. and Acrivos, A. "Low Reynolds Number Shear Flow Past a Rotating Circular Cylinder. Part I. Momentum Transfer," *J. Fluid Mech.* **40**, 685 (1970).
77. Robertson, C.R. and Acrivos, A. "Low Reynolds Number Shear Flow Past a Rotating Circular Cylinder. Part II. Heat Transfer," *J. Fluid Mech.* **40**, 705 (1970).
78. Frankel, N.A. and Acrivos, A. "The Constitutive Equation for a Dilute Emulsion," *J. Fluid Mech.* **44**, 65 (1970).
79. Liang, S.F. and Acrivos, A. "Experiments on Buoyancy-Driven Convection in Non-Newtonian Fluids," *Rheol. Acta* **9**, 447 (1970).
80. "Heat Transfer at High Peclet Number from a Small Sphere Freely Rotating in a Simple Shear Field," *J. Fluid Mech.* **46**, 233 (1971).
81. Skoog, J., Leal, L.G. and Acrivos, A. "On the Motion of Gas Bubbles in a Viscoelastic Liquid," *Canadian J. of Chem. Engrg.* **49**, 569 (1971).
82. Klemp, J.B. and Acrivos, A. "High Reynolds Number Flow Past a Flat Plate with Strong Blowing," *J. Fluid Mech.* **51**, 337 (1972).
83. Klemp, J.B. and Acrivos, A. "A Method for Integrating the Boundary Layer Equations Through a Region of Reverse Flow," *J. Fluid Mech.* **53**, 177 (1972).
84. Klemp, J.B. and Acrivos, A. "A Note on the Laminar Mixing of Two Uniform Parallel Semi-Infinite Streams," *J. Fluid Mech.* **55**, 25 (1972).
85. Klemp, J.B. and Acrivos, A. "High Reynolds Number Steady Separated Flow Past a Wedge of Negative Angle," *J. Fluid Mech.* **56**, 577 (1972).
86. Russel, W.B. and Acrivos, A. "On the Effective Moduli of Composite Materials: Slender Rigid Inclusions at Dilute Concentrations," *Z.A.M.P.* **23**, 434 (1972).

87. Rocha, A. and Acrivos, A. "On the Effective Thermal Conductivity of Dilute Dispersions. General Theory for Inclusions of Arbitrary Shape," *Quart. J. Mech. and Appl. Math.* **26**, 217 (1973).
88. Barthes-Biesel, D. and Acrivos, A. "On Computer Generated Analytic Solutions to the Equations of Fluid Mechanics. The Case of Creeping Flows," *J. Comput. Phys.* **12**, 403 (1973).
89. Nir, A. and Acrivos, A. "On the Creeping Motion of Two Arbitrary-Sized Touching Spheres in a Linear Shear Field," *J. Fluid Mech.* **59**, 209 (1973).
90. Barthes-Biesel, D. and Acrivos, A. "The Rheology of Suspensions and its Relation to Phenomenological Theories for Non-Newtonian Fluids," *Int. J. Multiph. Flow* **1**, 1 (1973).
91. Barthes-Biesel, D. and Acrivos, A. "Deformation and Burst of a Liquid Droplet Freely Suspended in a Linear Shear Field," *J. Fluid Mech.* **61**, 1 (1973).
92. Rocha, A. and Acrivos, A. "On the Effective Thermal Conductivity of Dilute Dispersions. Highly Conducting Inclusions of Arbitrary Shape," *Quart. J. Mech. and Appl. Math.* **26**, 441 (1973).
93. Russel, W.B. and Acrivos, A. "On the Effective Moduli of Composite Materials: Experimental Study of Chopped Fiber Reinforcement," *Z.A.M.P.* **24**, 838 (1973).
94. Rocha, A. and Acrivos, A. "Experiments on the Effective Conductivity of Dilute Dispersions Containing Highly Conducting Slender Inclusions," *Proc. R. Soc. Lond. A* **337**, 123 (1974).
95. Nir, A. and Acrivos, A. "Experiments on the Effective Viscosity of Concentrated Suspensions of Solid spheres," *Int. J. Multiph. Flow*, **1**, 373 (1974).
96. Kossack, C.A. and Acrivos, A. "Steady Simple Shear Flow Past a Circular Cylinder at Moderate Reynolds Numbers: A Numerical Solution," *J. Fluid Mech.* **66**, 353 (1974).
97. Nir, A., Weinberger, H.F. and Acrivos, A. "Variational Inequalities for a Body in Viscous Shearing Flow," *J. Fluid Mech.* **68**, 739 (1975).
98. Youngren, G.K. and Acrivos, A. "Stokes Flow Past a Particle of Arbitrary Shape. A Numerical Method of Solution," *J. Fluid Mech.* **69**, 377 (1975).
99. Youngren G.K. and Acrivos, A. "Rotational Friction Coefficients for Ellipsoids and Chemical Molecules with Slip Boundary Condition," *J. Chem. Phys.* **63**, 3846 (1975).
100. Poe, G.G. and Acrivos, A. "Closed Streamline Flows Past Rotating Single Cylinders and Spheres: Inertia Effects," *J. Fluid Mech.* **72**, 605 (1975).

101. Poe, G.G. and Acrivos, A. "Closed Streamline Flows Past Small Rotating Particles: Heat Transfer at High Peclet Numbers," *Int. J. Multiph. Flow* **2**, 365 (1976).
102. Klemp, J.B. and Acrivos, A. "A Moving-Wall Boundary Layer with Reverse Flow," *J. Fluid Mech.* **76**, 363 (1976).
103. Youngren, G.K. and Acrivos, A. "On the Shape of a Gas Bubble in a Viscous, Extensional Flow," *J. Fluid Mech.* **76**, 433 (1976).
104. Nir, A. and Acrivos, A. "On the Effective Thermal Conductivity of Sheared Suspensions," *J. Fluid Mech.* **78**, 33 (1976).
105. Chen, H-S. and Acrivos, A. "On the Effective Thermal Conductivity of Dilute Suspensions Containing Highly Conducting Slender Inclusions," *Proc. Roy. Soc. London A* **349**, 261 (1976).
106. Jeffrey, D.J. and Acrivos, A. "The Rheological Properties of Suspensions of Rigid Particles," *AIChE J* **22**, 417 (1976).
107. Chen, H-S. and Acrivos, A. "The Solution of the Equations of Linear Elasticity for an Infinite Region Containing Two Spherical Inclusions," *Int. J. Solids and Structures* **14**, 331 (1978).
108. Chen, H-S. and Acrivos, A. "The Effective Elastic Moduli of Composite Materials Containing Spherical Inclusions at Non-Dilute Concentrations," *Int. J. Solids and Structures* **14**, 349 (1978).
109. Acrivos, A. and Lo, T.S. "Deformation and Breakup of a Single Slender Drop in an Extensional Flow," *J. Fluid Mech.* **86**, 641 (1978).
110. Rallison, J.M. and Acrivos, A. "A Numerical Study of the Deformation and Burst of a Viscous Drop in an Extensional Flow," *J. Fluid Mech.* **89**, 191 (1978).
111. Hinch, E.J. and Acrivos, A. "Steady Long Slender Droplets in Two-Dimensional Straining Motion," *J. Fluid Mech.* **91**, 401 (1979).
112. Acrivos, A. and Herbolzheimer, E. "Enhanced Sedimentation in Settling Tanks with Inclined Walls," *J. Fluid Mech.* **92**, 435 (1979).
113. "The Extended Graetz Problem at Low Peclet Numbers," *Appl. Sci. Res.* **A 36**, 35 (1980).
114. A Note on the Rate of Heat or Mass Transfer from a Small Particle Freely Suspended in a Linear Shear Field," *J. Fluid Mech.* **98**, 299 (1980).
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116. Acrivos, A., Hinch, E.J. and Jeffrey D.J. "Heat Transfer to a Slowly Moving Fluid from a Dilute Fixed Bed of Heated Spheres," *J. Fluid Mech.* **101**, 403 (1980).
117. Gadala-Maria, F. and Acrivos, A. "Shear-Induced Structure in a Concentrated Suspension of Solid Spheres," *J. of Rheology* **24**, 799 (1980).
118. Kojima, M. and Acrivos, A. "The Scheraga-Mandelkern Parameters for Slightly Permeable Spheroids," *J. Chem. Phys.* **74**, 4096 (1981).
119. Herbolzheimer, E. and Acrivos, A. "Enhanced Sedimentation in Narrow Tilted Channels," *J. Fluid Mech.* **108**, 485 (1981).
120. Brady, J.F. and Acrivos, A. "Steady Flow in a Channel or Tube with an Accelerating Surface Velocity. An Exact Solution to the Navier-Stokes Equations with Reverse Flow," *J. Fluid Mech.* **112**, 127 (1981).
121. Lee, T.S., Parikh, P.G., Bershader, D. and Acrivos, A. "Natural Convection in a Vertical Channel with Opposing Buoyancy Forces," *Int. J. Heat and Mass Transfer* **25**, 499 (1982).
122. Sangani, A.S. and Acrivos, A. "Slow Flow Past Periodic Arrays of Cylinders with Application to Heat Transfer," *Int. J. Multiphase Flow* **8**, 193 (1982).
123. Brady, J.F. and Acrivos, A. "Closed-Cavity Laminar Flows at Moderate Reynolds Numbers," *J. Fluid Mech.* **115**, 427 (1982).
124. Brady, J.F. and Acrivos, A. "The Deformation and Breakup of a Slender Drop in an Extensional Flow: Inertial Effects," *J. Fluid Mech.* **115**, 443 (1982).
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126. Sangani, A.S. and Acrivos, A. "The Effective Conductivity of a Periodic Array of Spheres," *Proc. B. Soc. Lond.* **A, 386**, 263 (1982).
127. Sangani, A.S. and Acrivos, A. "Slow Flow Through a Periodic Array of Spheres," *Int. J. Multiphase Flow* **8**, 343 (1982).
128. Davis, R.H., Herbolzheimer, E. and Acrivos, A. "The Sedimentation of Polydisperse Suspensions in Vessels Having Inclined Walls," *Int. J. Multiphase Flow* **8**, 571 (1982).
129. Sangani, A.S. and Acrivos, A. "Creeping Flow Through Cubic Arrays of Spherical Bubbles," *Int. J. Multiphase Flow* **9**, 181 (1983).

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131. "The Breakup of Small Drops and Bubbles in Shear Flows," Ann. New York Acad. Sciences **404**, 1 (1983).
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Patents:

1. Microfluidic device for assembling and transporting microparticles has electrodes which are applied with alternating current (AC) voltage in sequenced manner to move high-gradient electric field within channel in substrate. Patent Number(s): US7744737-B1. Publ.Date 29 June 2010 Inventor(s): ACRIVOS A, JAMES C D, KHUSID B, KUMAR A Patent Assignee(s) and Codes(s):SANDIA CORP(LOCK-C) Derwent Primary Accession Number: 2010-H42750 [50]