

RESUME

Name: Larry J. Forney

Address: 4029 Menlo Way, Doraville, Georgia 30340

Academic Background:

Degree	Year	University	Field
B.S.	1966	Case Institute of Tech	Engineering Science
M.S.	1968	M.I.T.	Mechanical Engineering
M.E.	1969	M.I.T.	Mechanical Engineering
Ph.D.	1974	Harvard University	Engineering Science

Academic Honors:

Title	Years
Case Scholarship	1963-1964
Tau Beta Pi	1965
Sigma Xi	1967
E.P.A. Fellowship	1968-1969
U.S.E.P.A. Traineeship	1969-1974
N.S.F. Initiation Grant	1975-1977
SCEEE/AFOSR Fellow	1982
ASEE/NASA Fellow	1988

Technical Work Experience:

Title	Organization	Years
Technician	Case Tech	1965*
Research Engineer	General Electric Co.	1966*
Research Assistant	M. I. T. Fluid Mechanics Lab.	1966-1968
Research Engineer	National Research Corp.	1968
Research Engineer	Walden Research Corp.	1972-1973
Senior Engineer	Walden Research Div. of Abcor Inc.	1973-1974
Asst. Professor	University of Illinois	1974-1979
Research Engineer	Arnold Engineering Dev. Center	1982*
Research Scientist	Air Force Rocket Propulsion Lab.	1983*
Research Scientist	NASA - Lewis Research Center	1988*

*Summer

Professional Societies:

American Institute of Chemical Engineers
Harvard Society of Engineers and Scientists
North American Mixing Forum

Consulting:

Walden Research Division of Abcor Inc.
Commercial Union Insurance Company
Los Alamos Scientific Laboratory
Lockheed-Georgia Company
Sverdrup Technology Inc.
Phillips Petroleum Company
Georgia Pacific Company
Dupont
Leeds & Northrup
Mundy & Gammage
C.J. Distributing
Parker, Poe & Burnstein
Davis, Dorin, Curtis & Neil
Dow Corning Inc.
Rohm & Haas Co.
Brennan, Harris & Rominger
Holl Technologies
Eastman Kodak Co.
Columbian Chemical Co.

Theses:

Forney, L. J., "Turbulent Plume in a Laminar Crossflow," M.S. Thesis, M.I.T. (1968)

Forney, L. J., "Aerosols in Turbulent Tube Flow: A Study of Deposition and Rebound," Ph.D. Thesis, Harvard University (1974).

Listed In:

Who's Who in America
Who's Who in Science and Engineering
Who's Who in Engineering
American Men and Women of Science

Book Chapters:

1. Driscoll, N. J., and Forney, L. J., "An Instrument for Continuous Monitoring of Nitrate in Atmospheric Particulates," in Analytical Methods Applied to Air Pollution Measurements, R. K. Stevens (Ed.) Ann Arbor Science Publishers Inc., Ann Arbor, Michigan (1974).
2. Forney, L. J., "Jet Injection for Optimum Pipeline Mixing", Encyclopedia of Fluid Mechanics, (N. P. Cheremisinoff, Ed.) vol. II, chapter 25, Gulf Publishing Co. (1986).

3. Forney, L.J., "Design of Tee Mixers for Non-Reactive and Reactive Flows", AICHE/NAMF Symposium Series, Process Mixing: Chemical and Biological Applications, Tatterson and Calabrese, Eds., (1992).
4. Forney, L.J. and Fralick, G.C., "Frequency Response of a Uniform Thermocouple Wire: Effects of Axial Conduction", Heat and Mass Transfer: An Era of Change, (Ed. T.N. Veziroglu), Nova Science Pub. (1992).
5. Forney, L.J. and Monclova, L.A., "Numerical Simulation of Pipeline Tee Mixers" Comparison with Data", Process Mixing: Chemical and Biochemical Applications, Vol. III, AICHE Symposium Series, Tatterson and Calabrese, Eds. (1994).
6. Forney, L.J., "Advances in Disinfection Techniques for Water Reuse", Chap. 28, in Improving Water and Energy Management in Food Processing, (Eds. R. Smith and J. Kim), Woodhead Publishing Co. (2007).

Journal Publications:

1. Hoult, D. P., Fay, J. A., and Forney, L. J., "A Theory of Plume Rise Compared with Field Observations," Journal of the Air Pollution Control Association, 19, 585 (1969).
2. Forney, L. J., and McCoy, J. F., "A Flow-Through Electrode Unit for Measurement of Particulate Atmospheric Nitrate," Analyst, 100, 157 (1975).
3. Forney, L. J., and Spielman, L. A., "Deposition of Coarse Aerosols from Turbulent Flow," Journal of Aerosol Science, 5, 257 (1974).
4. Forney, L. J., "On the Duration of Contact for the Hertzian Impact of Spherical Indenter on a Maxwell Solid," International Journal of Solids and Structures, 10, 621 (1974).
5. Forney, L. J., and Spielman, L. A., "Aerosol Rebound from Viscous Surfaces," Journal of Colloid and Interface Science, 52, 468 (1975).
6. Forney, L. J., "Aerosol Fractionator for Large-Scale Sampling," Rev. Scientific Instruments, 47, 1264 (1976).
7. Forney, L. J., and Kwon, T. C., "Efficient Single-Jet Mixing in Turbulent Tube Flow," AIChE J, 25, 623 (1979).
8. Forney, L. J., Ravenhall, D. G., and Winn, D. S., "Aerosol Impactors: A Study of a Fluid Jet Impinging Upon a Void," Journal of Applied Physics, 49, 2339 (1978).
9. Ravenhall, D. G., Forney, L. J., and Jazayeri, M., "Aerosol Sizing with a Slotted Virtual Impactor," Journal of Colloid and Interface Science, 64, 108 (1978).

10. Forney, L. J., Lee, S. S., and Szurgot, A. M., "Irrigated Precipitator for Sampling Soluble Aerosols," Journal of American Industrial Hygiene Association, 39, 626 (1978).
11. Ravenhall, D. G., and Forney, L. J., "Aerosol Impactors: Calculation of Optimum Geometries," Journal of Physics, E., Scientific Instrumentation, 13 87 (1980).
12. Forney, L. J., "Air Scare,"Engineering Outlook, University of Illinois at Urbana, 21, No. 3 (1979).
13. Forney, L. J., and Giz, Z. G., "Slow Chemical Reactions in Power Plant Plumes: Application to Sulfates," Atmospheric Environment, 14, 533 (1980).
14. Forney, L. J., and Giz, Z. G., "Fast Reversible Reactions in Power Plant Plumes: Application to the Nitrogen Dioxide Photolytic Cycle," Atmospheric Environment, 15, 345 (1981).
15. Ravenhall, D. G., Forney, L. J., and Hubbard, A. J., "Theory and Observations of a TwoDimensional Virtual Impactor," Journal of Colloid and Interface Science, 85 (1982).
16. Forney, L.J., Ravenhall, D.G. and Lee S. S., "Experimental and Theoretical Study of a Two-Dimensional Virtual Impactor", Environmental Science & Tech, 16,492-497(1982).
17. Forney, L. J., and Lee, H. C., "Optimum Dimensions for Pipeline Mixing at a T-Junction", AIChE J, 28, 980 (1982)
18. Forney, L. J., and Heffner, D. A., "Theory of Slow Second Order Reactions in Power Plant Plumes: Comparison with Preliminary Data," Chemical Engineering Communications, 17, 227(1982).
19. Forney, L. J., and Oakes, L. A., "Slow Second Order Reactions in a Deflected Buoyant Jet," AIChE J, 29, 30 (1983).
20. Forney, L. J., Discussion of paper 16535, "Jet Injections for Optimum Mixing in Pipe Flow" by Fitzgerald and Holley, Journal of Hydraulics Division ASCE, 109 (1983).
21. Forney, L. J., and McGregor, W. K., "Scaling Laws for Particle Breakup in Nozzle Generated Shocks," Particulate Science and Technology, 1, 419 (1983).
22. Forney, L. J., and Droscher, F. M., "Reactive Plume Model: Effect of Stack Exit Conditions on Gas Phase Precursors and Sulfate Formation", Atmospheric Environment, 19, 879 (1985).

23. O'Leary, C. D., and Forney, L. J., "Optimization of In-Line Mixing at a 90° Tee", I&EC Process Design and Development, 24, 332 (1985).
24. Forney, L. J., and McGregor, W. K., "Particle Sampling in Supersonic Streams with a Thin Walled Cylindrical Probe", AIAA J, 25, 1100 (1987).
25. Forney, L. J., McGregor, W. K., and Van Dyke, D. B., "Computation of Gas Flowfields in Supersonic Particle Probes", ASME J. Fluids Engr, 108, 76 (1986).
26. Forney, L. J., Walker, A. E., and McGregor, W. K., "Dynamics of Particle-Shock Interactions, Part II: Effect of the Basset Term", Aerosol Science and Technology, 6, 143 (1987).
27. Forney, L. J., Van Dyke, D. B., and McGregor, W. K., Dynamics of Particle-Shock Interactions, Part I. Similitude", Aerosol Science and Technology, 6, 129 (1987).
28. Shaver, E. M., and Forney, L. J., "Properties of Industrial Dense Gas Plumes," Atmospheric Environment, 22, 833 (1988).
29. Forney, L. J., "Droplet Impaction on a Supersonic Wedge: Consideration of Similitude," AIAA J, 28, 650 (1990).
30. Sroka, L. M., and Forney, L. J., "Fluid Mixing in a 90° Pipeline Elbow," I & EC Research, 28, 850 (1989).
31. Ivie, J. J., and Forney, L. J., "A Numerical Model of the Synthesis of Carbon Black by Benzene Pyrolysis," AIChE J, 34 1813 (1988).
32. Sroka, L. M., and Forney, L. J., "Fluid Mixing with a Pipeline Tee: Theory and Experiment," AIChE J, 35, 406 (1989).
33. Ernst, W. R., Shoaie, M. and Forney, L. J., "Selectivity Behavior of the Chloride - Chlorate Reaction System in Various Reactor Types," AIChE J, 34 1927 (1988).
34. D'Souza, R. and Forney, L. J. "Slow Bimolecular Reactions in a Deflected Turbulent Jet," Chemical Engineering Journal, 43, 127 (1990).
35. Ivie, J. J., Forney, L. J. and Roach, R. L., "Supersonic Particle Probes: Measurement of Internal Wall Losses," Aerosol Science and Tech, 13, 368 (1990).
36. Forney, L. J. and Gray, G.E "Optimum Design of a Tee Mixer for Fast Reactions" AIChE J, 36, 1773 (1990).
37. Forney, L. J., "Particle Impaction from Axially Symmetric Supersonic Flow", Aerosol Science and Tech, 15, 49(1991).

38. Forney, L. J., and Fralick, G. C., "Frequency Response of a Thermocouple Wire: Effects of Axial Conduction", Int. Comm. Heat Mass Transfer, 18, 531(1991)
39. Fralick, G.C. and Forney, L.J., "Frequency Response of a Supported Thermocouple Wire: Effects of Axial Conduction" Rev. Scientific Instruments, 64, 3236 (1993).
40. Forney, L.J., "Particle Impaction on a Supersonic Cone", Aerosol Science and Tech, 20, 318(1994).
41. Forney, L.J., Meeks, E., Ma, J. and Fralick, G.C., "Measurements of the Frequency Response in Short Thermocouple Wires", Rev. Scientific Instruments, 64, 1280 (1993).
42. Forney, L. J., "Gas Diffusion Electrode - Membrane Cells: Effects of Ion Transport", I&EC Research, 32, 1204 (1993).
43. Forney, L. J., "Static Mixer Applications and Scale-up", Chemical Processing, 22, March (1994).
44. Forney, L. J. and Fralick, G. C. "Two Wire Thermocouple: Frequency Response in Constant Flow", Rev Scientific Instruments, 65 , 3252 (1994).
45. Forney, L. J. and Monclova, L. A., "Numerical Simulation of Pipeline Tee Mixers", I&EC Research, 34, 1488(1995).
46. Forney, L.J. and Fralick, G.C. "Three Wire Thermocouple: Frequency Response in Constant Flow", Rev. Scientific Instruments, 66, 3331(1995).
47. Forney, L.J. and Fralick, G.C., "Multiwire Thermocouples in Reversing Flow", Rev. Scientific Instruments, 66, 5050 (1995).
48. Forney, L. J., Noureddine, N. and Vo, H., "Optimum Jet Mixing in a Tubular Reactor," AIChE J, 42, 3113-3122 (1996).
49. Brown, J.M., Kadlubowski, B.M., Forney, L.J. and Sommerfeld, J.T., "Density Gradient Columns: Dynamic Modeling for Linear Profiles", Rev. Scientific. Instruments, 67, 3973-3980 (1996).
50. Kadlubowski, B.M., Brown, J.M., Forney, L.J. and Sommerfeld, J.T., "Process Dynamics for Overflow Devices of Rectangular, Circular, Parabolic and Triangular Shape, J. Loss Prevention in the Process Industries, 10, 229(1997).
51. Forney, L. J., and Henderson, C. L., "Electrochemical Membranes: Transport Limitations for Absorbed Gases", J. Applied Electrochemistry, 28, 423(1998).

52. Wang, X., Feng, Z. and Forney, L. J. "Computational Simulation of Turbulent Mixing with Mass Transfer", J. Computers and Structures, 70, 447(1999).
53. Forney, L.J. and Nafia, N., "Turbulent Jet Reactors: Mixing Time Scales," Trans. I Chem E, 76,728(1998).
54. Feng, Z., Wang, X. and Forney, L. J., Single Jet Mixing at Arbitrary Angle in Turbulent Tube Flow", ASME J of Fluids Engineering, 121, 762-765(1999).
55. Forney, L.J. and Nafla, N., "Eddy Contact Model:CFD Simulations of Liquid Reactions in Nearly Homogenous Turbulence", Chemical Engineering Science, 55,6049-6058(2000).
56. Forney, L.J., Feng, Z. and Wang, X., "Jet Trajectories of Mixers at Arbitrary Angle in Turbulent Tube Flow", Trans. IChemE , 77,754-758 (1999).
57. Forney, L.J., Penney W.R. and Vo H.X., "Scale-up in Plug-Flow Reactors: Laminar Feed, AIChE J, 47,31-38(2001).
58. Forney, L.J., Skelland, A.H.P., Morris, J.F., and Holl, R.A., "Taylor Vortex Column: Large Shear for Liquid-Liquid Extraction", Separation Science and Tech., 37, 2967-2986(2002).
59. Georges, A.G., Wang, X. and Forney, L.J., "The Jet Shape of Concentric Mixers", Canadian J. Chemical Eng., 79, 87-93(2001).
60. Georges, A.G., Forney, L.J., and Wang X., "Numerical Study of Multi-Jet Mixing, Trans. IChemE, 79, 515-522(2001).
61. Forney, L.J. and Pierson, J.A., "Optimum Photolysis in Taylor-Couette Flow", AIChE J, 49, 727-734(2003).
62. Forney, L.J. and Pierson, J.A., "Photolytic Reactors: Similitude in Taylor-Couette and Channel Flows" AIChE J, 49, 1285-1292(2003).
63. Forney, L.J., "Similitude in Stirred Tank Reactors: Laminar Feed", AIChE J, 49, 2655-2661(2003).
64. Forney, L.J., Goodridge, C. F. and Pierson, J.A., "Ultraviolet Disinfection of Water: Taylor-Couette and Channel Flow", Environmental Science and Tech., 37, 5015-5020(2003).
65. Forney, L.J. and Pierson, J.A., "Ultraviolet Disinfection", Resource, 11, 7(2004).
66. Forney, L.J., and Pierson, J.A., "Ultraviolet Disinfection in the Meat and Poultry Industries", Turkeys, 52, April (2004).

67. Forney, L.J., Pierson, J.A. and Ye, Z., "Juice Disinfection with Taylor-Couette Flow", Journal of Food Protection, 67, 2410-2415(2004).
68. Park, Y., Forney, L. J., Kim, J., and Skelland, A.H.P., "Optimum Emulsion Liquid Membranes Stabilized by Non-Newtonian Conversion in Taylor-Couette Flow", Chemical Engineering Science, 59, 5725-5734(2005).
69. Forney, L.J., Pierson, J.A. and Giorges, A. G., "Photon Absorption in Modified Taylor-Couette Flow: Theory and Experiment", I&EC Research, 44, 5193-5198(2005).
70. Forney, L.J., Brown J.M., Kadlubowski, B. M. and Sommerfeld, J.T., "Simplified Model of a Polymer Electrolyte Fuel Cell", Canadian J. Chemical Eng., 83, 500-507(2005)
71. Forney, L.J., Ye, Z. and Giorges, A., "Fast Competitive Reactions in Taylor-Couette Flow", I&EC Research, 44, 7306-7312(2005).
72. Park, Y., Forney, L.J., Skelland, A.H.P., Kim, J., Removal of phenol and substituted phenols by a newly developed emulsion liquid membrane process, Water Research, 40, 1763-1772(2006).
73. Ye, Z. Koutchma, T. and Forney, L.J., A novel method to measure UV inactivation kinetics, J. Food Science(submitted, 2005).
74. L.J. Forney, Ye, Z. and T. Koutchma, Modeling of UV Disinfection: Implications of Series-Event Kinetics for CSTR and Batch Reactors, J. Food Science (submitted, 2005).