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MAJOR TEXTS

'Introductory Chemical Engineering Thermodynamics,' J. Richard Elliott and Carl T. Lira, Prentice-Hall, 660 pp., 1999. Online at: <http://www.egr.msu.edu/~lira/thermtxt.htm>

PUBLICATIONS IN ARCHIVAL JOURNALS

1. 'Diffusivity Correlations Based on Modified Reference Fluid Simulation,' Z. Nevin Gerek and J. Richard Elliott, *IECR*, submitted (2009).
2. 'Transferable Intermolecular Potentials and Equations of State for Carboxylic Acids and Their Phase Behavior,' Amir Vahid, J. Richard Elliott, *AIChE J.*, in press (2009).
3. 'Finitely Limited Group Contribution Correlations for Boiling Temperatures,' Fateme Sadat Emami, Amir Vahid, J. Richard Elliott, Farzaneh Feyzi, *J. Chem. Thermo.*, 31:530-537 (2009).
4. 'Correlation Of Mixture Vapor-Liquid Equilibria With The Speadmd Model,' Amir Vahid, Amanda D. Sans, J. Richard Elliott, *Ind. Eng. Chem. Res.*, 47:7955-7964 (2008).
<http://pubs.acs.org/cgi-bin/download.pl?ie800374h/L6Za>
5. 'Group Contribution Prediction of Vapor Pressure with SAFT, PC-SAFT and ESD Equations of State,' Fateme Sadat Emami, Amir Vahid, J. Richard Elliott, Farzaneh Feyzi, *Ind. Eng. Chem. Res.*, 47:8401-8411 (2008). <http://pubs.acs.org/cgi-bin/download.pl?ie800329r/A7on>
6. 'Inferring Transferable Potential Models,' Sinan Ucyigitler, Mehmet C. Camurdan, Metin Turkey, J. Richard Elliott, *Molecular Simulation.*, 34:147-154 (2008).
7. 'Butadiene Purification Using Polar Solvents. Analysis of Mixture Nonideality Using Data and Estimation Methods,' Paul M. Mathias, J. Richard Elliott, Andreas Klamt, *Ind. Eng. Chem. Res.*, 47:4996-5004 (2008).
8. 'Transferable Potentials for Perfluorinated Molecules,' Amanda D. Sans, J. Richard Elliott, *Fluid Phase Equilibria*, 263:182-189 (2008).
9. 'Combining Molecular Dynamics and Chemical Process Simulation: The SPEADMD Model' *AsiaPacific J. Chem. Eng.*, 2:257-271 (2007).
10. 'Transferable Potentials for Alcohol-Amine Interactions,' J. Richard Elliott, Amir Vahid, Amanda D. Sans, *Fluid Phase Equilibria*, 256:4-13 (2007).

11. 'Molecular dynamic simulations and global equation of state of square-well fluids with well-widths from 1.1 to 2.1,' Sergei B. Kiselev, James F. Ely, J. Richard Elliott, *Mol. Phys.*, 104:2545-2559 (2006).
12. 'Asymptotic Trends in Thermodynamic Perturbation Theory,' J. Richard Elliott and Neil H. Gray, *J. Chem. Phys.*, 123:184902 (2005).
13. 'Transferable Step Potentials for Amines, Amides, Acetates, and Ketones,' Suhan Baskaya, Neil Gray, Z. Nevin Gerek, and J. Richard Elliott, *Fluid Phase Equilibria*, 236:42-52 (2005).
14. 'Molecular Modeling of Isomer Effects in Naphthenic and Aromatic Hydrocarbons,' Neil Gray, Z. Nevin Gerek, and J. Richard Elliott, *Fluid Phase Equilibria*, 228-229C, 147-153 (2005).
15. 'Gas Permeation in the Silicalite Single Crystal Membrane,' M.G. Ahunbay, J.R. Elliott, Jr., and O. Talu, *Adsorption*, 11(sup1):313-318 (2005).
16. 'The Effect of Surface Resistances on the Diffusion of Binary Mixtures in the Silicalite Single Crystal Membrane,' M.G. Ahunbay, J.R. Elliott, Jr., and O. Talu, *J. Phys. Chem. B*, 109:923-929 (2005).
17. 'Surface Resistance to Permeation Through the Silicalite Single Crystal Membrane: Variation with Permeant,' M.G. Ahunbay, J.R. Elliott, Jr., and O. Talu, *J. Phys. Chem. B*, 108:7801-7808 (2004).
18. 'Transferable Step Potentials for the Straight Chain Alkanes, Alkenes, Alkynes, Ethers, and Alcohols,' Ozlem Unlu, Neil Gray, Z. Nevin Gerek, and J. Richard Elliott, *Ind. Eng. Chem. Res.*, 43:1788-1793 (2004).
19. 'Binary Interactions of Poly(Ethylene Covinyl Alcohol) with Poly(4-Vinyl Pyridine) and Poly(*n*-Butyl Methacrylate),' S. Keskin and J.R. Elliott, *Ind. Eng. Chem. Res.*, 42:6331 (2003).
20. 'The Diffusion Processs of Methane in the Silicalite Single Crystal Membrane,' M.G. Ahunbay, J.R. Elliott, Jr., and O. Talu, *J. Phys. Chem. B*, 106:5163 (2002).
21. 'Phase Diagrams for Multi-step Potential Models of n-Alkanes by DMD/TPT,' J. Cui and J.R. Elliott, Jr., *J. Chem. Phys.*, 116:8625 (2002).
22. 'Computer Simulations and Crossover Equation of State of Square-Well Fluids,' S.B. Kiselev, J.F. Ely, L. Lue, and J.R. Elliott, Jr., *Fluid Phase Equilibria*, 200:121 (2002).
23. 'Extension of the ESD Equation to Polymer Solutions,' J.R. Elliott, Jr., R.N. Natarajan, *Ind. Eng. Chem. Res.* 41:1043 (2002).

24. 'Optimized Step Potential Models for n-Alkanes and Benzene,' J.R. Elliott, Jr., *Fluid Phase Equilibria*, 194:161 (2002).
25. 'High-Pressure Vapor-Liquid Equilibrium for Dimethyl Ether + Isopropanol and Dimethyl Ether + Isopropanol + Water,' M.M. Elbaccouch, J.R. Elliott, Jr., *J. Chem. Eng. Data*, 46:675 (2001).
26. 'Phase Envelopes For Variable Width Square Well Chain Fluids,' J. Cui and J.R. Elliott, Jr., *J. Chem. Phys.*, 114:7283 (2001).
27. 'The Bancroft Point and Vapor-Liquid Equilibria in the System Isopropanol + Benzene,' J.R. Elliott, Jr., J.C. Rainwater, *Fluid Phase Equilibria*, 175:229 (2000). Database at: <http://130.101.3.26/~chem/fclty/elliott/BancroftPts.zip>
28. 'High-Pressure Vapor-Liquid Equilibrium for Dimethyl Ether + Ethanol and Dimethyl Ether + Ethanol + Water,' M.M. Elbaccouch, J.R. Elliott, Jr., *J. Chem. Eng. Data*, 45:1080 (2000).
29. 'Critical Compressibility Factors for Chain Molecules,' L. Lue, D.G. Friend, J.R. Elliott, Jr., *Molecular Physics*, 98:1473-1477 (2000).
30. Vapor-Liquid Equilibria for an R134a/Lubricant Mixture: Measurements and Equation-of-State Modeling,' Marcia L. Huber, Cynthia D. Holcomb, Stephanie L. Outcalt, J. Richard Elliott, Jr., *ASHRAE Transactions: Symposia*, 106(1):768 (2000).
31. 'High-Pressure Vapor Liquid Equilibria of R-22 + Ethanol and R-22 + Ethanol + Water,' M.M. Elbaccouch, M.B. Raymond, J.R. Elliott, Jr., *J. Chem. Eng. Data*, 45:280 (2000).
32. 'Vapor Liquid Equilibria of Square-Well Chains,' L. Hu, H. Rangwalla, J. Cui, J.R. Elliott, Jr., *J. Chem. Phys.*, 111:1293 (1999).
33. 'Vapor Liquid Equilibria of Square-Well Spheres,' J.R. Elliott, Jr. and L. Hu, *J. Chem. Phys.*, 110:3043 (1999).
34. 'Chemical Vapor Deposition of Carbon on Graphite by Methane Pyrolysis', S. Bammidipati, G.D. Stewart, J.R. Elliott, Jr., S.A. Gokoglu, M.J. Purdy, *AIChE J.*, 42:3123 (1996).
35. 'Screening Effects on Hydrogen Bonding in Chain Molecular Fluids: Thermodynamics and Kinetics', J-X. Liu, J.R. Elliott, Jr., *Ind. Eng. Chem. Res.* 35:2369 (1996).
36. 'Efficient Implementation of Wertheim's Theory for Multicomponent Mixtures of Multiply Associating Species', J.R. Elliott, Jr., *Ind. Eng. Chem. Res.* 35:1624 (1996).
37. 'Chemical Engineering Education in Turkey and the United States', J.R. Elliott, Jr., *Chemical Engineering Education*, 30:150 (1996).
Online at: <http://130.101.3.26/~chem/fclty/elliott/FulbRep.pdf>

38. 'Screening vs. Hydrogen Bonding in the Poly(vinylpyridine)+Poly(vinylbutyral) System', M.L. Franzen, J.R. Elliott, Jr., Kyu, T., *Macromolecules*, 28:5147 (1995)
39. 'Theory and Measurement of Fates of H₂S Scavengers', J.R. Elliott, Jr., M.B. Raymond, B. Kalpakci, N.F. Magri, *Soc. Pet. Eng., SPE*:28949 (1995)
40. 'Discontinuous molecular dynamics simulation of hydrogen bonding systems', J.-X. Liu, T.L. Bowman, II, and J.R. Elliott, Jr., *Ind. Eng. Chem. Res.*, 33:957 (1994).
41. 'Correlation and prediction of binary VLE in systems containing gases, hydrocarbons, alcohols, and water,' A.S. Puhala and J.R. Elliott, Jr., *Ind. Eng. Chem. Res.* 32:3174 (1993).
42. 'Intramolecular variations in structure of chain molecular fluid mixtures', V.J. Vasudevan and J.R. Elliott, Jr., *Fluid Phase Equilibria*, 83:33 (1993).
43. 'Fluid Structure for Sophomores', J. Richard Elliott, Jr., *Chem. Eng. Ed.*,27:44 (1993).
44. 'Multiphase equilibrium analyses of complex mixtures via an association-based equation of state', S.J. Suresh and J.R. Elliott, Jr., *Ind. Eng. Chem. Res.*, 31:2783 (1992).
45. 'Microcellular foams via polymerization in near-critical diluents', G. Srinivasan and J.R. Elliott, Jr., *Ind. Eng. Chem. Res.*, 31:1414 (1992).
46. 'Structure and thermodynamics of chain molecular fluid mixtures', V.J. Vasudevan and J.R. Elliott, Jr., *Molecular Physics*, 75:443 (1992).
47. 'Microcellular methacrylates: Effect of supercritical drying on pore size and density', J.R. Elliott, Jr., R. Akhaury, and G. Srinivasan, *Polymer Communications*, 32(1):11 (1991).
48. 'Binary and multicomponent vapor-liquid equilibria of synthesis gas components, methanol, and water with tetraethylene glycol dimethyl ether' P. Khosla, C. Krishnan, J.R. Elliott, Jr., and J.M. Berty, *Chem. Eng. Comm.*, 102:35 (1991).
49. 'Simulation of a three-phase reactor for the solvent methanol process', C. Krishnan, J.R. Elliott, Jr., and J.M. Berty, *Chem. Eng. Comm.*, 105:155 (1991).
50. 'Applications of a generalized equation of state for associating mixtures', J.R. Elliott, Jr. and S.J. Suresh, *Ind. Eng. Chem. Res.*, 30:523 (1991).
51. 'Continuous operation of the Berty reactor for the Solvent Methanol Process', C. Krishnan, J.R. Elliott, Jr., and J.M. Berty, *Ind. Eng. Chem. Res.*, 30:1413 (1991).
52. 'A simple equation of state for non-spherical and associating molecules', J.R. Elliott, Jr., S.J. Suresh, and M.D. Donohue, *Ind. Eng. Chem. Res.*, 29:1476 (1990).

53. 'Beat the Equilibrium', J.M. Berty, C. Krishnan, and J.R. Elliott, Jr., *ChemTech*, 20:624 (1990).
54. 'Attractive force effects in chain molecular fluids', J.R. Elliott, Jr., U.S. Kanetkar, and V.J. Vasudevan, *Molecular Physics*, 71:883 (1990).
55. 'Theory and simulation of chain molecule fluid structure', J.R. Elliott, Jr. and U.S. Kanetkar, *Molecular Physics*, 71:871 (1990).
56. 'Evaluation of the equation of state method for calculation of the critical properties of mixtures', J.R. Elliott, Jr. and T.E. Daubert, *Ind. Eng. Chem. Res.*, 26:1686-1691 (1987).
57. 'The temperature dependence of the hard sphere diameter', J.R. Elliott, Jr. and T.E. Daubert, *Fluid Phase Equilibria*, 31:153-160 (1986). $d_{hs}/r_{min} = [n(0.0093n-0.0592)/\beta\varepsilon^2+(n-1)/\beta\varepsilon+1]^{-1/(2n+1)}$
58. 'Revised procedures for phase equilibrium calculations with the Soave equation of state', J.R. Elliott, Jr. and T.E. Daubert, *I&EC Proc. Des. Dev.*, 24:743 (1985).'

PUBLICATIONS IN REFEREED BOOKS

- 'Critical Phase Behavior,' J.R. Elliott, *Encyclopedia of Chemical Engineering.*, Sunggyu Lee, Ed. Marcel Dekker (2006).
- 'The Soave Equation,' J.R. Elliott, *Encyclopedia of Chemical Engineering.*, Sunggyu Lee, Ed. Marcel Dekker (2006).
- 'Hydrogen Bonding,' J.R. Elliott, *Encyclopedia of Chemical Engineering.*, Sunggyu Lee, Ed. Marcel Dekker (2006).
- 'Multi-Step Potential Modeling of Methane by DMD/TPT,' J.R. Elliott, Jr., J. Cui, *AIChE Symp. Ser.*, 325:159 (2001).
- 'Light Scattering Study of Polymer Network Formation in a Supercritical Diluent', J.R. Elliott, Jr. and H.M. Cheung, *ACS Symp. Ser.*, 514:271 (1993).
- 'Critical Properties,' Chapter 4 in Technical Data Book, T.E. Daubert and R.P. Danner (eds.), American Petroleum Institute, Washington (1988).

PATENTS

- 'Microcellular Foams', Elliott, Jr., J.R., Srinivasan, G., Dhanuka, M., Akhaury, R., U.S. Patent# 5128382, Issued July, 7, 1992.
- 'Microcellular Foams: Compositions of Matter', Elliott, Jr., J.R., Srinivasan, G., Dhanuka, M., Akhaury, R., U.S. Patent, 5,252,620, Issued October 12, 1993.