

CURRICULUM VITAE

EPAMINONDAS C. VOUTSAS

Dr. Chemical Engineer

Associate Professor, National Technical University of Athens, Greece

September, 2015

I. BIOGRAPHICAL DATA

SURNAME: Voutsas
NAME: Epaminondas
Web page: <http://ttpl.chemeng.ntua.gr/Voutsas.html>
DATE of BIRTH: March 12, 1968
EDUCATION: 1985-1991
Diploma in Chemical Engineering, Aristotle University of Thessaloniki
1993-1997
Doctor in Chemical Engineering, National Technical University of Athens (NTUA)

LANGUAGES: Greek, English

PROFESSIONAL EXPERIENCE:

- i. 6/1997 – 12/2001 Post Doctoral Fellow, Laboratory of Thermodynamics and Transport Phenomena, School of Chemical Engineering, NTUA.
- ii. 1/2002 – 10/2004 Employee, NTUA
- iii. 10/2004 – 9/2009 Lecturer, School of Chemical Engineering, NTUA.
- iii. 10/2009 – today Assistant Professor, School of Chemical Engineering, NTUA.
- iv. 9/2014 – today Associate Professor, School of Chemical Engineering, NTUA.
- v. 10/2014 – July 2015 Associate Professor, Department of Energy and Process Engineering, Norwegian University of Science and Technology, NTNU, *sabbatical leave*.

PROFESSIONAL SOCIETIES: Member of Technical Chamber of Greece (TEE)
Member of Hellenic Association of Chemical Engineers
Member of the Working Party of the European Federation of Chemical Engineering entitled Thermodynamics and Transport Properties

LISTED IN: Marquis Who is Who in the World

H-index: 26 (Source: SCOPUS, September 2015).

REVIEWER FOR: AIChE Journal, Industrial & Engineering Chemistry Research, Fluid Phase Equilibria, Chemical Engineering Journal, Chemosphere, Journal of Chemical and Engineering Data, Chemical Physics Letters, European Polymer Journal, The Canadian Journal of Chemical Engineering, Chemical Engineering Communications, Chemical Engineering Research & Design, Fuel, Energy & Fuels, Thermochemica Acta, Journal of Environmental Management, The Journal of Physical Chemistry, Applied and Environmental Soil Science, Journal of Agricultural and Food Chemistry, Journal of Hazardous Materials, J. Supercritical Fluids, Geochimica et Cosmochimica Acta, The Journal of Chemical Thermodynamics, Process Safety and Environmental Protection, Journal of Thermodynamics, Chemical Engineering Research and Design, Toxicological & Environmental Chemistry, Sustainable Chemistry & Engineering, Chemical Engineering Science,

International Journal of Refrigeration, Biofuels, Advances in Space Research, Science China Chemistry, Neural Computing and Applications, Separation and Purification Technology, Energy Conversion & Management.

SCHOLARSHIPS: Greek State Scholarship's Foundation (11/1993-11/1996).

II. BASIC DIRECTIONS OF MY RESEARCH ACTIVITIES

My research activities fall in the field of Chemical Engineering Thermodynamics and its applications. These can be classified in the following five main topics:

A. Prediction of thermodynamic properties of natural gas mixtures and simulation of natural gas processes

This research, which is funded by Statoil A.S., Norway, mainly focuses on:

- Development of a reliable thermodynamic model able to accurately predict the dew points of natural gas mixtures. To this purpose the so-called UMR-PRU is used, which gives much better dew point predictions than other thermodynamic models commonly employed by the gas industry such as cubic EoS and PC-SAFT.
- Development of thermodynamic models able to accurately predict the PVT behavior of reservoir fluids and natural gas mixtures.
- Development of simple and reliable methods for the characterization of the heavy end (C7+) fraction of the natural gas.
- Measurement of natural gas dew points
- Simulation of natural gas processes.

B. Modelling of phase equilibria of pure compounds and mixtures

The research in this area mainly focuses on:

- Development of models for the prediction of pure compound properties such as boiling points, critical properties, vapor pressures, liquid densities, heat capacities etc.
- Equations of State (EoS) with emphasis given to the type of mixing rules that combine equations of state with Gibbs free energy models, resulting to the so-called EoS/ G^E models.
- Modelling of complex mixtures such as those containing hydrogen bonding compounds with the Cubic-Plus Association (CPA) EoS.

C. Experimental measurements and modelling of supercritical fluids

The research in this area mainly focuses on:

- Recovery of high added value bio-active compounds, e.g. essential oils and antioxidants, from natural sources with Supercritical Fluid Extraction (SFE).
- Modelling and optimization of the SFE process.
- Use of supercritical CO₂ for fine particle production.
- Modelling of phase equilibria of SCCO₂ mixtures.

D. Experimental measurements and modelling of phase equilibria of mixtures containing ionic liquids (ILs)

The research in this area mainly focuses on:

- Use of ILs as alternative solvents for industrial applications

- Use of ILs as alternative solvents in biotechnology
- Synthesis and characterization of recyclable and biodegradable task-specific ILs
- Experimental measurements and modelling of phase equilibrium in mixtures containing ILs. For modelling purposes the COSMO-RS model is studied.

E. Applications of Chemical Engineering Thermodynamics

An important part of my research work is focused on the applications of Chemical Engineering Thermodynamics. These applications lie mainly in the following areas:

- ❖ *Biotechnology*: prediction of reaction equilibrium constants and conversions in enzyme-catalyzed reactions, prediction of water activities in enzymatic reactions in non-aqueous media (organic solvents, ILs, SCCO₂)
- ❖ *Environmental Engineering*: prediction of thermodynamic properties of organic pollutants (octanol-water partition coefficients, solubilities in water, Henry's law coefficients, etc.), prediction of the fate of inorganic and organic pollutants in the various environmental compartments (water, aquatic biota, air, soil, sediment).
- ❖ *Energy with emphasis to thermal treatment of wastes with energy recovery*: Energy and exergy analysis of the plasma gasification process.

III. PUBLICATIONS

A. IN INTERNATIONAL JOURNALS WITH REFEREES (1280 citations, excluded self-citations. Source: SCOPUS, September 2015)

1. E.C. Voutsas, N. Spiliotis, N.S. Kalospiros and D.P. Tassios "Prediction of Vapor-Liquid Equilibria at Low and High Pressures Using UNIFAC-based Models", *Ind. Eng. Chem. Res.*, 34 (1995) 681.
2. E.C. Voutsas, N. Kalospiros and D. P. Tassios "A Combinatorial Activity Coefficient for Symmetric and Asymmetric Mixtures", *Fluid Phase Equil.*, 109 (1995) 1.
3. E.C. Voutsas, N.S. Kalospiros, C. Boukouvalas and D.P. Tassios "The Performance of EoS/G^E Models in the Prediction of Phase Equilibria in Asymmetric Systems", *Fluid Phase Equil.*, 116 (1996) 480.
4. E.C. Voutsas and D.P. Tassios "Prediction of Infinite-Dilution Activity Coefficients in Binary Mixtures with UNIFAC. A Critical Evaluation", *Ind. Eng. Chem. Res.*, 35 (1996) 1438.
5. G.M. Kontogeorgis, E.C. Voutsas and D.P. Tassios "A Molecular Simulation-Based Method for the Estimation of Activity Coefficients for Alkane Solutions", *Chem. Eng. Sci.*, 51 (1996) 3247.
6. G.M. Kontogeorgis, E.C. Voutsas, I.V. Yakoumis and D.P. Tassios "An Equation of State for Associating Fluids", *Ind. Eng. Chem. Res.*, 35 (1996) 4310.
7. E.C. Voutsas and D.P. Tassios "On the Extension of the p-FV and R-UNIFAC Models to Multicomponent Mixtures", *Fluid Phase Equil.*, 128 (1997) 271.
8. I.V. Yakoumis, G.M. Kontogeorgis, E.C. Voutsas and D.P. Tassios "Vapor-Liquid Equilibria for Alcohol/Hydrocarbon Systems Using the CPA Equation of State", *Fluid Phase Equil.*, 130 (1997) 31.
9. E.C. Voutsas, G.M. Kontogeorgis, I.V. Yakoumis and D.P. Tassios "Correlation of Liquid-Liquid Equilibria for Alcohol/Hydrocarbon Mixtures Using the CPA Equation of State", *Fluid Phase Equil.*, 132 (1997) 61.
10. E.C. Voutsas and D.P. Tassios "Analysis of the UNIFAC-type Group-Contribution Models at the Highly Dilute Region. 1. Limitations of the Combinatorial and Residual Expressions", *Ind. Eng. Chem. Res.*, 36 (1997) 4965.
11. E.C. Voutsas and D.P. Tassios "An Analysis of the UNIFAC-type Group-Contribution Models at the Highly Dilute Region. 2. Empirical Improvements with Application to

- Water/Hydrocarbon Mixtures", *Ind. Eng. Chem. Res.*, 36 (1997) 4973.
12. I. Hatzioannidis, E.C. Voutsas, E. Lois and D.P. Tassios "Measurement and Prediction of Reid Vapor Pressure of Gasoline in the Presence of Additives", *J. Chem. Eng. Data*, 43 (1998) 386.
 13. I.V. Yakoumis, G.M. Kontogeorgis, E.C. Voutsas, E.M. Hendriks and D.P. Tassios "Prediction of Phase Equilibria in Binary Aqueous Systems Containing Alkanes, Cycloalkanes and Alkenes with the Cubic-plus-Association Equation of State", *Ind. Eng. Chem. Res.*, 37 (1998) 4175.
 14. E.C. Voutsas, I.V. Yakoumis and D.P. Tassios "Prediction of Phase Equilibria in Water/Alcohol/Alkane Systems", *Fluid Phase Equil.*, 158 (1999) 151.
 15. G.D. Pappa, E.C. Voutsas and D.P. Tassios "Prediction of Activity Coefficients in Polymer and Copolymer Solutions using Simple Activity Coefficient Models" *Ind. Eng. Chem. Res.*, 38 (1999) 4975.
 16. E.C. Voutsas, G.C. Boulougouris, I.G. Economou and D.P. Tassios "Water/hydrocarbon Phase Equilibria Using the Thermodynamic Perturbation Theory" *Ind. Eng. Chem. Res.*, 39 (2000) 797.
 17. H. Stamatis, E.C. Voutsas, Ch. Delimitsou, F. N. Kolisis and D.P. Tassios "Enzymatic Production of Alkyl Esters Through Lipase-Catalyzed Transesterification Reactions in Organic Solvents: Solvent Effects and Prediction Capabilities of Equilibrium Conversions" *Biocatalysis and Biotransformation*, 18 (2000) 259.
 18. N. Spiliotis, E.C. Voutsas, K. Magoulas and D.P. Tassios "Recovery of Fructose Laurate Produced Through Enzymatic Esterification" *Separation & Purification Technology*, 19 (2000) 229.
 19. E.C. Voutsas, M.V. Flores, N. Spiliotis, G. Bell, P.J. Halling and D.P. Tassios "Prediction of Critical Micelle Concentrations of Nonionic Surfactants in Aqueous and Nonaqueous Solvents with UNIFAC", *Ind. Eng. Chem. Res.*, 40 (2001) 2362.
 20. E.C. Voutsas, N. Spiliotis and D.P. Tassios "Enzymatic Reactions in Non-Conventional Media: Prediction of Solvent Water Content for Optimum Water Activity", *Biocatalysis and Biotransformation*, 19 (2001) 99.
 21. E.C. Voutsas, E.A. Tritopoulou, K. Magoulas and D.P. Tassios "Prediction Helps Analytical Experimental Work for Environmental Purposes", *Mikrochimika Acta*, 136 (2001), 193.
 22. E.C. Voutsas, C. Andreou, D. Theodorou and D.P. Tassios "Prediction of Infinite Dilution Volatilities of Aroma Compounds in Water" *J. of Food Science*, 66 (2001) 447.
 23. M.V. Flores, E.C. Voutsas, N. Spiliotis, G.M. Eccleston, G. Bell, D.P. Tassios and P. J. Halling "Critical Micelle Concentrations of Nonionic Surfactants in Organic Solvents: Approximate Prediction with UNIFAC", *J. Colloid. Interface Sci.*, 240 (2001) 277.
 24. G.C. Boulougouris, E.C. Voutsas, I.G. Economou, D.N. Theodorou and D.P. Tassios "Henry's Constant Analysis for Water and Nonpolar Solvents from Experimental Data, Macroscopic Models, and Molecular Simulation", *J. Phys. Chem. B.*, 105 (2001) 7792.
 25. E.C. Voutsas, E.V. Abatzi and D.P. Tassios "Application of the Equilibrium Partitioning Theory for the Prediction of the Bioaccumulation of Organic Pollutants in Aquatic Biota", *Fresenius Environ. Bulletin*, 10 (2001) 480.
 26. G. Pappa, E.C. Voutsas and D.P. Tassios "Liquid-Liquid Phase Equilibrium in Polymer-Solvent Systems: Correlation and Prediction of the Polymer Molecular Weight and the Pressure Effect", *Ind. Eng. Chem. Res.*, 40 (2001) 4654.
 27. E.C. Voutsas, H. Stamatis, F.N. Kolisis and D. Tassios "Solvent Effects on Equilibrium Position and Initial Rate of Lipase-Catalyzed Esterification Reactions in Organic Solvents: Experimental Results and Prediction Capabilities", *Biocatalysis and Biotransformation*, 20:2 (2002) 101.
 28. E. Retzekas, E. Voutsas, K. Magoulas and D. Tassios "Prediction of Physical Properties of Hydrocarbons, Petroleum and Coal Liquid Fractions", *Ind. Eng. Chem. Res.*, 41 (2002) 1695.
 29. E. Voutsas, M. Lampadariou, K. Magoulas and D. Tassios "Prediction of Vapor Pressures of Pure Compounds from Knowledge of the Normal Boiling Point

- Temperature", *Fluid Phase Equil.*, 198/1 (2002) 81.
30. K. Katsikaris, E. Voutsas, G. Andronikos, S. Stamataki and K. Magoulas "Recycling Ferrous-Nickel Slag in Blast Cleaning", *Waste Management and Research*, 20/3 (2002) 269.
 31. P. Tsavas, S. Polydorou, E. Voutsas, K. Magoulas, K. Naraghi and P.J. Halling "Sucrose Solubility in Mixtures of Water, Alcohol, Ester and Acid", *J. Chem. Eng. Data*, 47/3 (2002) 513.
 32. P. Tsavas, S. Polydorou, I. Fafli, E. Voutsas, D.P. Tassios, M.V. Flores, K. Naraghi, P.J. Halling, F. Chamouleau, M. Ghou, J.-M. Engasser, M. Ferrer and F. Plou "Solubility of Glucose in Mixtures Containing t-Pentanol, Dimethyl Sulfoxide, Acids, Esters and Water", *J. Chem. Eng. Data*, 47/4 (2002) 807.
 33. E. Voutsas, K. Magoulas, D. Tassios "Prediction of the Bioaccumulation of Persistent Organic Pollutants in Aquatic Food Webs", *Chemosphere*, 48/7 (2002) 645.
 34. A. Mountouris, E. Voutsas and D. Tassios "Bioconcentration of Heavy Metals in Aquatic Environments: The Importance of Bioavailability", *Marine Pollution Bulletin*, 44/10 (2002) 1134.
 35. E. Voutsas, P. Tsavas, K. Magoulas, D. Tassios, M. Ferrer, F. Plou and A. Ballesteros "Solubility Measurements of Fatty Acid Glucose and Sucrose Esters in 2-Methyl-2-Butanol and Mixtures of 2-Methyl-2-Butanol with Dimethyl Sulfoxide", *J. Chem. Eng. Data*, 47 (2002) 1517.
 36. P. Coutsikos, E. Voutsas, K. Magoulas, D. Tassios "Prediction of Vapor Pressures of Solid Organic Compounds with a Group-Contribution Method", *Fluid Phase Equil.*, 207 (2003) 263.
 37. E. Tritopoulou, G. Pappa, E. Voutsas, I. Economou, D.P. Tassios "Modeling of Liquid-Liquid Equilibria in Aqueous Solutions of Poly(Ethylene Glycol) with a UNIFAC-Based Model", *Ind. Eng. Chem. Res.*, 42 (2003) 5399.
 38. V. Louli, G. Folas, E. Voutsas, K. Magoulas "Extraction of Parsley Seed Oil by Supercritical CO₂", *J. Supercritical Fluids*, 30 (2004) 163.
 39. E. Voutsas, G. Pappa, C. Boukouvalas, K. Magoulas, D. Tassios "Miscibility in Binary Polymer Blends: Correlation and Prediction", *Ind. Eng. Chem. Res.*, 43/5 (2004) 1312.
 40. A. Vrachnos, E. Voutsas, K. Magoulas, A. Lygeros "Thermodynamics of Acid Gas-MDEA-Water Systems" *Ind. Eng. Chem. Res.*, 43 (2004) 2798.
 41. E. Voutsas, A. Vrachnos, K. Magoulas "Measurement and Thermodynamic Modeling of the Phase Equilibrium of Aqueous N-Methyldiethanolamine Solutions" *Fluid Phase Equil.*, 224 (2004) 191.
 42. E. Voutsas, K. Magoulas, D. Tassios "A Universal Mixing Rule for Cubic Equations of State Applicable to Symmetric and Asymmetric Systems: Results with the Peng-Robinson Equation of State" *Ind. Eng. Chem. Res.*, 43 (2004) 6238.
 43. P. Tsavas, E. Voutsas, K. Magoulas, D. Tassios "Phase Equilibrium Calculations in Aqueous and Nonaqueous Mixtures of Sugars and Sugar Derivatives with a Group-Contribution Model" *Ind. Eng. Chem. Res.*, 43 (2004) 8391.
 44. E. Voutsas, Ch. Vavva, K. Magoulas, D. Tassios "Estimation of the volatilization of organic compounds from soil surfaces" *Chemosphere*, 58 (2005) 751.
 45. S. Pouloupoulos, E. Voutsas, H. Grigoropoulou, C. Philippopoulos "Stripping as a Pretreatment Process of Industrial Oily Wastewater" *J. Hazardous Materials*, B117 (2005) 135.
 46. G. Pappa, E. Voutsas, K. Magoulas, D. Tassios "Estimation of the Differential Molar Heat Capacities of Organic Compounds at their Melting Point", *Ind. Eng. Chem. Res.*, 44/10 (2005) 3799.
 47. G. Leontarakis, P. Tsavas, E. Voutsas, K. Magoulas, D. Tassios "Experimental and Predicted Results of Anomeric Equilibrium of Glucose in Alcohols", *J. Chem. Eng. Data*, 50/6 (2005) 1924.
 48. E. Voutsas, G. Pappa, K. Magoulas, D. Tassios "Vapor Liquid Equilibrium Modeling of Alkane Systems with Equations of State: Simplicity versus Complexity", *Fluid Phase Equil.*, 240 (2006) 127.

49. A. Mountouris, E. Voutsas and D. Tassios "Solid Waste Plasma Gasification: Equilibrium Model Development and Exergy Analysis", *Energy Conversion & Management*, 47 (2006) 1723.
50. E. Voutsas, V. Louli, C. Boukouvalas, K. Magoulas, D. Tassios "Thermodynamic Property Calculations with the Universal Mixing Rule for EoS/G^E Models: Results with the Peng-Robinson EoS and a UNIFAC Model", *Fluid Phase Equil.*, 241 (2006) 216.
51. Ch. Perakis, E. Voutsas, K. Magoulas, D. Tassios "Thermodynamic Modeling of the Vapor-Liquid-Equilibrium of the Water/Ethanol/CO₂ System", *Fluid Phase Equil.*, 243 (2006) 142
52. G. Pappa, Ch. Anastasi, E. Voutsas "Measurement and Thermodynamic Modeling of the Phase Equilibrium of Aqueous 2-amino-2-methyl-1-propanol Solutions", *Fluid Phase Equil.*, 243 (2006) 193
53. E. Panteli, E. Voutsas, K. Magoulas, D. Tassios "Prediction of Vapor Pressures and Enthalpies of Vaporization of Organic Compounds from the Normal Boiling Point Temperature", *Fluid Phase Equil.*, 248 (2006) 70.
54. A. Vrachnos, G. Kontogeorgis, E. Voutsas "Thermodynamic Modeling of Acidic Gas Solubility in Aqueous Solutions of MEA, MDEA and MEA-MDEA Blends" *Ind. Eng. Chem. Res.*, 45 (2006) 5148.
55. F. Varanda, M. J. Pratas de Melo, A. Cacüo, R. Dohrn, F. Makrydaki, E. Voutsas, D. Tassios, I. Marrucho "Solubility of Antibiotics in Different Solvents. 1. Hydrochloride Forms of Tetracycline, Moxifloxacin, and Ciprofloxacin", *Ind. Eng. Chem. Res.*, 45 (2006) 6368.
56. R. Dohrn, E. Bertakis, O. Behrend, E. Voutsas, D. Tassios "Melting Point Depression by Using Supercritical CO₂ for a Novel Melt Dispersion Micronization Process", *J. of Molecular Liquids*, 131-132 (2007) 53.
57. E. Bertakis, I. Lemonis, S. Katsoufis, E. Voutsas, R. Dohrn, K. Magoulas, D. Tassios "Measurement and Thermodynamic Modeling of Solid-Liquid-Gas Equilibrium of Some organic Compounds in the Presence of CO₂", *J. Supercritical Fluids*, 41/2 (2007) 238.
58. Ch. Perakis, E. Voutsas, K. Magoulas, D. Tassios "Thermodynamic Modeling of the Water + Acetic Acid + CO₂ System: The Importance of the Number of Association Sites of Water and of the Nonassociation Contribution for the CPA and SAFT-Type Models", *Ind. Eng. Chem. Res.*, 46/3 (2007) 932.
59. E. Voutsas, Ch. Perakis, G. Pappa, D. Tassios "An Evaluation of the Performance of the Cubic-Plus-Association Equation of State in Mixtures of non-Polar, Polar and Associating Compounds: Towards a Single Model for non-Polymeric Systems", *Fluid Phase Equil.*, 261/1-2 (2007) 343.
60. V. Louli, Ch. Boukouvalas, E. Voutsas, K. Magoulas, D. Tassios "Application of the UMR-PRU Model to Multicomponent Systems: Prediction of the Phase Behavior of Synthetic Natural Gas and Oil Systems", *Fluid Phase Equil.*, 261/1-2 (2007) 351.
61. A. Mountouris, E. Voutsas, D. Tassios "Plasma Gasification of Sewage Sludge: Process Development and Energy Optimization", *Energy Conversion & Management*, 49/8 (2008) 2264.
62. E.K. Panteli, E.K. Voutsas "Solubilities of Cinnamic Acid Esters in Ionic Liquids", *J. Chem. Eng. Data*, 54/3 (2009) 812.
63. G. Pappa, C. Perakis, I. Tsimpanogiannis, E. Voutsas "Thermodynamic Modeling of the vapor-liquid equilibrium of the CO₂/H₂O mixture", *Fluid Phase Equil.*, 284/1 (2009) 56.
64. E. Alevizou, G. Pappa, E. Voutsas "Prediction of phase equilibrium in mixtures containing ionic liquids using UNIFAC", *Fluid Phase Equil.*, 284/2 (2009) 99.
65. E. Panteli, P. Saratsioti, H. Stamatias, E. Voutsas, "Solubilities of Cinnamic Acid Esters in Organic Solvents", *J. Chem. Eng. Data*, 55 (2010) 745.
66. E. Panteli, E. Voutsas "Solubilities of Cinnamic Acid Esters in Binary Mixtures of Ionic Liquids and Organic Solvents", *Fluid Phase Equil.*, 295 (2010) 201.
67. C. Perakis, V. Louli, E. Voutsas, K. Magoulas "Supercritical CO₂ Extraction of Dittany Oil: Experiments and Modelling", *J. Supercrit. Fluids*, 55 (2010) 573-578.
68. E. Voutsas, C. Pamouktsis, D. Argyris, G. Pappa "Measurements and thermodynamic

- modeling of the ethanol–water system with emphasis to the azeotropic region", *Fluid Phase Equil.*, 308 (2011) 135.
69. G. Pappa, V. Louli, K. Dedousi, E. Voutsas "Phase Equilibria of Mixtures Containing CO₂ and Organic Acids Using the UMR-PRU Model", *J. Supercritical Fluids*, 58 (2011) 321-329.
 70. V. Louli, G. Pappa, Ch. Boukouvalas, S. Skouras, E. Solbraa, K.O. Christensen, E. Voutsas, "Measurement and Prediction of Dew Point Curves of Natural Gas Mixtures", *Fluid Phase Equil.*, 334 (2012) 1.
 71. I. Lemonis, D. Tsimogiannis, V. Louli, E. Voutsas, V. Oreopoulou, K. Magoulas "Extraction of Dittany (*Origanum dictamnus*) using supercritical CO₂ and liquid solvent", *J. Supercritical Fluids*, 76 (2013) 48.
 72. E. Alevizou, E. Voutsas " Solubilities of p-coumaric and caffeic acid in ionic liquids and organic solvents", *J. Chem. Thermodynamics*, 62 (2013) 69.
 73. A. Tzani, A. Douka, A. Papadopoulos, E. Pavlatou, E. Voutsas, A. Detsi "Synthesis of biscoumarins using recyclable and biodegradable task-specific ionic liquids", *Sustainable Chemistry & Engineering*, 1/9 (2013) 1180.
 74. E. Alevizou, E. Voutsas "Evaluation of COSMO-RS model in binary and ternary mixtures of natural antioxidants, ionic liquids and organic solvents", *Fluid Phase Equil.*, 369 (2014) 55.
 75. Ch. Tsanas, A. Tzani, A. Papadopoulos, A. Detsi, E. Voutsas, "Ionic liquids as entrainers for the separation of the ethanol/water system", *Fluid Phase Equil.*, 379 (2014) 148.
 76. S. Voulgaris, A. Papadopolou, E. Alevizou, H. Stamatis, E. Voutsas, "Measurement and prediction of solvent effect on enzymatic esterification reactions", *Fluid Phase Equil.*, 398 (2015) 51.
 77. N. Gjineci, E. Boli, A. Tzani, A. Detsi, E. Voutsas, " Separation of the ethanol/water azeotropic mixture using ionic liquids and deep eutectic solvents", *Fluid Phase Equil.*, **in press**.
 78. E. Skylogianni, N. Novak, V. Louli, G. Pappa, Ch. Boukouvalas, S. Skouras, E. Solbraa, E. Voutsas, "Measurement and Prediction of Dew Points of Six Natural Gas Mixtures", *Fluid Phase Equil.*, **in press**.

B. IN BOOKS

1. E. Voutsas, Ph. Coutsikos, G. Kontogeorgis
Equations of State with Emphasis on Excess Gibbs Energy Mixing Rules
In R. Gani and G. Kontogeorgis (Eds.): "Computer Aided Property Estimation"
Elsevier Science, **2004**.
2. E. Voutsas
Estimation of the Volatilization of Organic Chemicals from Soil
In T. Letcher (Eds.): "Thermodynamics, Solubility and Environmental Issues"
Elsevier Science, **2007**.
3. E. Voutsas
Supercritical Fluid Extraction
In Th. Varzakas, C. Tzia (Eds.): "Handbook Of Food Processing And Engineering, Vol. 1. Food Engineering Fundamentals",
CRC Press, Boca Raton, Florida, USA, 2014.

IV. CONTRIBUTIONS IN INTERNATIONAL CONFERENCES (over 100 contributions)

V. Invited talks

1. "A Universal Mixing Rule for Cubic Equations of State Applicable to Symmetric and Asymmetric Systems" The University of Oklahoma, School of Chemical, Biological and Materials Engineering, April 25, **2005**.
2. "Modeling of Phase Equilibrium: Basic Tools, New Advances and Applications" Department of Chemical and Food Engineering, School of Engineering, University of Salerno, April 19, **2007**.
3. "Phase equilibrium in natural gas mixtures" 25th European Seminar on Applied Thermodynamics, Saint Petersburg, Russia, June 24-27, **2011**.
4. "Plasma Gasification Assisted Processes" Sustainable Waste Management: A Workshop on Principles and Practice, Athens. Organized by The Earth Engineering Center (EEC) of Columbia University in collaboration with WTERT-Greece/SYNERGIA and AIT Athens Information Technology, Greece, June 18-22, **2012**.

VI. TEACHING

1. "Applied Thermodynamics", 3rd Semester, School of Chemical Engineering, NTUA.
2. "Chemical Engineering Thermodynamics", 4th Semester, School of Chemical Engineering, NTUA.
3. "Advanced Physical Separation Processes", 7th Semester, School of Chemical Engineering, NTUA.
4. "Elements of Mechanical Equipment", 7th Semester, School of Chemical Engineering, NTUA.
5. "Energy Conservation in Industry", Post-Graduate Program: *Energy Production and Management*, School of Electrical and Computer Engineering, NTUA.

VII. SPONSORED PROJECTS

"Gas Processing and LNG Technologies"

Financial Support: STATOIL S.A., Norway.

Duration: August 2015 – June 2017.

Project Coordinator

"Sustainable Use Of Marine Microalgae For The Production Of Biofuels And High-Added Value Biochemicals"

Financial Support: Greek General Secretariat for Research & Technology.

Duration: March 2013 – May 2015.

Researcher

"Gas Processing and LNG Technologies"

Financial Support: STATOIL S.A., Norway.

Duration: May 2013 – May 2015.

Project Coordinator

"CO₂TRACCS: CO₂ Transportation Risk Assessment for Carbon Capture and Storage"

Financial Support: Black Sea ERA.NET Project, DLR-JCS (FP7)

Duration: December 2011 – January 2014.

Researcher

“Further development of the UMR-PRU model/Technical support DLL-file”

Financial Support: STATOIL S.A., Norway.

Duration: May 2011 – June 2013.

Project Coordinator

“Simulator development / Process design with the UMR-PRU model”

Financial Support: STATOIL S.A., Norway.

Duration: May 2011 – December 2012.

Project Coordinator

“Prediction of phase equilibrium in hydrocarbon mixtures (Phase 2)”

Financial Support: STATOIL S.A., Norway.

Duration: February 2010 – September 2010.

Project Coordinator

“Experimental study of the stabilization of fly ash produced from the municipal solid waste incinerators with electricity production”

Financial Support: INTRAKAT S.A.

Duration: February 2010 – February 2011.

Project Coordinator

“Experimental study and thermodynamic modelling of phase equilibrium in mixtures of antioxidants and ionic liquids”,

Financial Support: Program PEVE, NTUA.

Duration: December 2009 – December 2011.

Project Coordinator

“Master and business plan for the management of the municipal solid waste of the 2nd management section of Viotia, Greece”

Financial Support: DEPODATH, S.A., Thiva, Viotia.

Duration: August 2009 – November 2009.

Project Coordinator

“Gas processing and Liquefied Natural Gas Technologies”

Financial Support: STATOIL S.A., Norway.

Duration: July 2009 – December 2009.

Project Coordinator

“Environmental management of the fly ash produced from the municipal solid waste incinerators with electricity production”

Financial Support: INTRAKAT S.A.

Duration: December 2008 – December 2009.

Project Coordinator

“Measurement and Thermodynamic Modelling of Phase Equilibria in Mixtures Containing Ionic Liquids”,

Financial Support: Greek General Secretariat for Research and Technology.

Duration: January 2006 – June 2008.

Project Coordinator

“Development of a Simulator for the Prediction of Acid Dew Point of Flue Gases”,
Financial Support: Greek Public Power Corporation S.A. (Project Coordinator)
Duration: May 2005 – November 2006.
Project Coordinator

“Enzymatic Transformation of Natural Antioxidants for the Optimization of the of their Recovery Process from Industrial Wastes and the Improvement of their Properties”,
Financial Support: Program EPET II, Greek General Secretariat for Research & Technology
Duration: January 1999 – May 2001.
Researcher

“Developments and Applications in Supercritical Fluids in Agriculture and Fisheries.
Financial Support: FAIR-CT98-3464, EU
Duration: June 1998 – June 2001.
Researcher

“Thermodynamic Modeling of Phase Equilibrium of Polymer Mixtures through Molecular Simulation, Macroscopic Models and Experimental Measurements”,
Financial Support: Program PENED99 (99ED143), Greek General Secretariat for Research and Technology.
Duration: October 1999 – September 2001.
Researcher

“Improved Lipase Synthesis of Sugar Esters by Combined Enzyme and Solvent Engineering”
Financial Support: BIO4-CT98-0363, EU
Duration: January 1999 – January 2001.
Researcher

“Development of Systems for Management of Sand-Blast Cleaning Wastes”,
Financial Support: Program PAVE, Greek General Secretariat for Research and Technology.
Budget: 35000 €
Duration: August 1997 – June 2000.
Researcher

“Inventory and Evaluation of the Current Situation of Blast-Cleaning / Quoting Operations in Greece”
Financial Support: LIFE96/Env/GR/586, EU.
Duration: May 1997 – May 1999.
Researcher

“Production of Sugar/Fatty Acid Esters from Renewable Agricultural Resources: An Integrated Optimization of Enzymatic - Purification Processes and of Surfactive Properties”,
Financial Support: AIR3-CT94-2291, EU.
Duration: September 1994 – September 1997.
Researcher

“Phase Equilibria in Associating Fluids”
Financial Support: Shell, Amsterdam.
Duration: September 1995 – September 1996.
Researcher

“Development of the Supercritical Extraction Procedure and its Application to the Waste Water Treatment”

Financial Support: Program PENED, Greek General Secretariat for Research & Technology.

Duration: September 1993 – September 1995.

Researcher

VIII. COMMITTEES

- ✓ 19th European Seminar on Applied Thermodynamics, Santorini Island, Greece, September 6-10, 2002.
- ✓ 19th European Conference on Thermophysical Properties, Thessaloniki, Greece, August 28 - September 1, 2011.
- ✓ Member of the Scientific Committee, Thematic Area: Thermodynamics, 9th Panhellenic Scientific Chemical Engineering Congress, Athens, May 23-25, 2013.
- ✓ 28th European Seminar on Applied Thermodynamics, Athens, Greece, June 11-14, 2015, **Chairman.**