Curriculum Vitae

Symeon I. BEBELIS

Born in 1959 in Patras, Greece

Current position

Associate Professor (since July 2008)
Department of Chemical Engineering, University of Patras, Greece
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GR 26504 Patras, Greece

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University education

Institution: Department of Chemical Engineering - University of Patras
Degree & Date: PhD in Chemical Engineering (Grade: "Excellent"), 1989

Institution: School of Chemical Engineering - National Technical University of Athens
Degree & Date: Diploma in Chemical Engineering (Grade average: 9.14/10), 1981

Previous positions

1998 – 2008	*Assistant Professor*, Department of Chemical Engineering - University of Patras, Greece
1993 - 1998	*Lecturer*, Department of Chemical Engineering - University of Patras, Greece
1989 - 1993	*Post-doctorate Researcher*, Department of Chemical Engineering - University of Patras & Institute of Chemical Engineering and High Temperature Chemical Processes Greece (ICEHT/FORTH), Greece
1983-1988	*Graduate student - Teaching & Research Assistant*, Department of Chemical Engineering - University of Patras, Greece

Research interests

- *Heterogeneous catalysis* (with emphasis on electrochemical promotion of catalysts) *& chemical kinetics and reactor engineering* (with emphasis on catalytic reactions)
- *Electrochemistry and electrochemical engineering* (with emphasis on electrocatalysis, on application of electrochemical methods for studying and affecting catalytic reactions, on study and development of fuel cells and on application of electrochemical techniques for studying electrode/electrolyte interfaces and for characterization of solid electrolytes and mixed conductors).

Professional affiliations (international)

- Working Party on Electrochemical Engineering (WPEE) of the European Federation of Chemical Engineering (EFCE)
  (Member since January 1996, *Chairman*, January 2007 – December 2010)
- The Electrochemical Society
- International Society of Electrochemistry (*Regional Representative of Greece* since 1/1/20111)

Honors

- Greek Academy of Sciences Award in Chemistry, 1992
- Fellowships : (a) Univ. of Patras & ICEHT- FORTH, 1984 - 1989
  (b) Greek State Fellowship (IKY), 1976 - 1981

Research experience

- *Supervisor of four (4) PhD Theses* (three of them completed), since 2002 - *Supervisor of more than 25 Diploma Theses*, since 1993
- *Member of the research group of more than 30 research projects*, funded mainly by the EU or the Greek General Secretariat for Research and Technology
- *Project leader or coordinator of thirteen (13) research projects* funded by the EU, the Greek General Secretariat for Research and Technology and the Research Committee of the University of Patras, Greece

  Total funding of his research group: ~450 k€

Other experience

- *Member or Chairman of the Organizing Committee* of twelve (12) Panhellenic or International Conferences and Summer Schools (7 international – Chairman in 4 of them, 5 Panhellenic)
- *Member of the Scientific Committee - Advisory Board* of fourteen (14) Panhellenic or International Conferences and Summer Schools (8 international, 6 Panhellenic)
- Guest Editor (along with Profs. C. G. Vayenas, M. P. Stoukides, H. Iwahara, W. Worrell) of Solid State Ionics: Special Issue dedicated to SSI-12 (2000)
- Guest Editor (along with Prof. N. Kouloumbi) of the Journal of Applied Electrochemistry: Special Issue dedicated to the 9th ESEE (2012)
- *Member of the Editorial Board of the Journal of Electrochemical Science and Engineering* – jESE (J. Electrochem. Sci. Eng., ISSN:1847-9286)
- *Reviewer* of submitted manuscripts in the following scientific journals: Applied Catalysis A, Applied Catalysis B, Catalysis Today, Chemistry of Materials, Fuel Cells, Ionics, Industrial & Engineering Chemistry Research, Journal of Catalysis, Journal of Hazardous Materials, Solid State Ionics, Electrochimica Acta, Journal of Applied Electrochemistry, Journal of the Electrochemical Society.

Conference participation/attendance

- Presentations in International Meetings & Summer Schools: 76
  (Plenary, Keynote or Invited Lectures: 11)
- Presentations in Panhellenic Conferences: 28 (2 invited lectures)

Publications

- *Publications in international scientific journals & series: 70*
- Books and invited chapters in books: 5 (3 international editions)
- Publications (multi-paged) in Proceedings of International Conferences: 16
- Publications (multi-paged) in Proceedings of Panhellenic Conferences: 23
- Patents: 1

Citation index

Approximately 2170 (~ 1890 excluding self-citations), up to July 2013

Citation index: 22

LIST OF PUBLICATIONS

A. ARTICLES IN INTERNATIONAL JOURNALS

A1. "Non-Faradaic Electrochemical Modification of Catalytic Activity", C.G. Vayenas, S. Bebelis, S. Neophytides, *J. Phys. Chem.* **92**(18) (1988) 5083-5085

A2. "Non-Faradaic Electrochemical Modification of Catalytic Activity: 1. The case of Ethylene Oxidation on Pt", S. Bebelis, C.G. Vayenas, *J. Catalysis* **118**(1) (1989) 125-146

A3. "In Situ High Temperature SERS of Ag Catalysts and Electrodes during Ethylene Epoxidation", S. Boghosian, S. Bebelis, C.G. Vayenas, G.N. Papatheodorou, *J. Catalysis* **117**(2) (1989) 561-565

A4. "Non-Faradaic Electrochemical Modification of Catalytic Activity in Solid Electrolyte Cells", C.G. Vayenas, S. Bebelis, S. Neophytides, I.V. Yentekakis, *Applied Physics A (Solids and Surfaces)* **49**(1) (1989) 95-103

A5. "Dependence of Catalytic Rates on Catalyst Work Function", C.G. Vayenas, S. Bebelis, S. Ladas, *Nature* **343**(6259) (1990) 625-627

A6. "Non-Faradaic Electrochemical Modification of Catalytic Activity on Pt Metals", C.G. Vayenas, S. Bebelis, I.V. Yentekakis, P. Tsiakaras, H. Karasali, *Platinum Metals Review* **34**(3) (1990) 122-130

A7. "Non-Faradaic Electrochemical Modification of Catalytic Activity: 4. The use of β"-Al_2O_3 as the Solid Electrolyte", C.G. Vayenas, S. Bebelis, M. Despotopoulou, *J. Catalysis* **128**(2) (1991) 415-435

A8. "Solid Electrolyte Cyclic Voltammetry for in situ Investigation of Catalyst Surfaces", C.G. Vayenas, A. Ioannides, S. Bebelis, *J. Catalysis* **129**(1) (1991) 67-87

A9. "Solid Electrolytes and Catalysis. Part 1: Chemical Cogeneration", C.G. Vayenas, S. Bebelis, C. Kyriazis, *Chemtech* **21** (1991) 422-428

A10. "Solid Electrolytes and Catalysis. Part 2: Non-Faradaic Catalysis", C.G. Vayenas, S. Bebelis, C. Kyriazis, *Chemtech* **21** (1991) 500-505

A11. "Work Function Measurements on Catalyst Films subject to in-situ Electrochemical Promotion", S. Ladas, S. Bebelis, C.G. Vayenas, *Surface Science*, **251/252** (1991) 1062-1069

A12. "Solid Electrolytes for in situ Promotion of Catalyst Surfaces: The NEMCA effect", C.G. Vayenas, S. Bebelis, I.V. Yentekakis, P. Tsiakaras, H. Karasali, Ch. Karavasilis, *ISSI Letters* **2** (1991) 5-7

A13. "Catalytic and Electrocatalytic Reactions in Solid Electrolyte Cells: The NEMCA effect", C.G. Vayenas, S. Bebelis, I.V. Yentekakis, P. Tsiakaras, H. Karasali, Ch. Karavasilis, *Materials Science Forum* **76** (1991) 141-148

A14. "Work Function Measurements in Solid Electrolyte Cells: Dependence of Electrode Work Function on Electrode Potential and Polarization", S. Bebelis, C.G. Vayenas, *Materials Science Forum* **76** (1991) 221-225

A15. "NEMCA: The Oxidation of CO on Ag", Ch. Karavasilis, S. Bebelis, C.G. Vayenas, *Materials Science Forum* **76** (1991) 175-197

A16. “Non-Faradaic Electrochemical Modification of Catalytic Activity: The Work Function of Electrodes in Solid Electrolyte Cells”, C.G. Vayenas, S. Bebelis, I.V. Yentekakis, S. Neophytides, *Solid State Ionics*, **53-56** (1992) 97-110

A17. “Non-Faradaic Electrochemical Modification of Catalytic Activity: 5. Oxygen Chemisorption on Silver”, S. Bebelis, C.G. Vayenas, *J. Catalysis* **138**(2) (1992) 570-587

A18. "Non-Faradaic Electrochemical Modification of Catalytic Activity: 6.The epoxidation of Ethylene on Ag/ZrO_2 (8mol%Y_2O_3)", S. Bebelis, C.G. Vayenas, *J. Catalysis* **138**(2) (1992) 588-610

A19. “Study of the NEMCA Effect in a Single-Pellet Catalytic Reactor”, I.V. Yentekakis, S. Bebelis, *J. Catalysis* **137**(1) (1992) 278-283

A20. “Non-Faradaic Electrochemical Modification of Catalytic Activity: A Status Report” (Review Paper), C.G. Vayenas, S. Bebelis, I.V. Yentekakis, H.-G. Lintz, *Catalysis Today* **11**(3) (1992) 303-442

A21. "The Origin of non-Faradaic Electrochemical Modification of Catalytic Activity", S. Ladas, S. Kennou, S. Bebelis, C.G. Vayenas, *J. Phys. Chem*. **97**(35) (1993) 8845-8848

A22. “Electrochemical Promotion in Catalysis: Non-Faradaic Electrochemical Modification of Catalytic Activity”, C.G. Vayenas, S. Ladas, S. Bebelis, I.V. Yentekakis, S. Neophytides, Jiang Yi, Ch. Karavasilis, C. Pliangos, *Electrochimica Acta* **39**(11-12) (1994) 1849-1855

A23. “Non-Faradaic Electrochemical Modification of Catalytic Activity: Solid Electrolytes as active Catalyst Supports”, C.G. Vayenas, S. Bebelis, I.V. Yentekakis, Ch. Karavasilis, Jiang Yi, *Solid State Ionics* **72**(2) (1994) 321-327

A24. “Selectivity Maximization of Ethylene Epoxidation via NEMCA with Zirconia and β"-Al_2O_3 Solid Electrolytes”, Ch. Karavasilis, S. Bebelis, C.G. Vayenas, *Ionics* **1**(1) (1995) 85-91

A25. “In Situ Controlled Promotion of Catalyst Surfaces via Solid Electrolytes: The NEMCA Effect”, C.G.Vayenas, I.V.Yentekakis, S.I.Bebelis, S.G.Neophytides, *Ber. Bunsengesel. Phys. Chemie* **99** (11) (1995) 1393-1401

A26. “Catalysis, Electrocatalysis and Electrochemical Promotion of the Steam Reforming of Methane over Ni Film and Ni-YSZ cermet Anodes”, I.V. Yentekakis, Y. Jiang, S. Neophytides, S. Bebelis, C.G. Vayenas, *Ionics* **1** (5 & 6) (1995) 491-498

A27. “Electrochemical Promotion of Catalyst Surfaces Deposited on Ionic and Mixed Conductors” A.C. Kaloyannis, C.A. Pliangos, D.T. Tsiplakides, I.V. Yentekakis, S.G. Neophytides, S. Bebelis, C.G. Vayenas, *Ionics* **1** (5 & 6) (1995) 414-420

A28. “Non-Faradaic Electrochemical Modification of Catalytic Activity: X. Ethylene epoxidation on Ag deposited on ZrO_2(8mol%Y_2O_3) in the presence of chlorine moderators”, Ch. Karavasilis, S. Bebelis, C.G. Vayenas, *J. Catalysis* **160**(2) (1996) 190-204

A29. “In situ controlled promotion of catalyst surfaces via NEMCA: The effect of Na on the Ag catalyzed ethylene epoxidation in the presence of chlorine moderators”, Ch. Karavasilis, S. Bebelis, C.G. Vayenas, *J. Cataysis* **160**(2) (1996) 205-213

A30. “Atomic resolution Scanning Tunneling Microscopy imaging of electrochemically controlled reversible promoter dosing of catalysts”, M. Makri, C. G. Vayenas, S. Bebelis, K. H. Besocke, C. Cavalca, *Surf. Sci.* **369**(1-3) (1996) 351-359

A31. “In situ controlled promotion of catalyst surfaces: Non-Faradaic Electrochemical Modification of Catalytic Activity”, S.G. Neophytides, S. Bebelis, I.V. Yentekakis, Y. Jiang, C. Pliangos, Ch. Karavassilis, S. Ladas, C.G. Vayenas, *Kinetics and Catalysis* **37**(5) (1996) 666-675

A32. “Atomic resolution Scanning Tunneling Microscopy imaging of Pt electrodes interfaced with β"-Al_2O_3” M. Makri, C. G. Vayenas, S. Bebelis, K. H. Besocke, C. Cavalca, *Ionics* **2**(3-4) (1996) 248-253

A33. “Electrochemical Promotion”, C. G. Vayenas, S. I. Bebelis, *Solid State Ionics* **94**(1-4) (1997) 267-277

A34. “The Electrochemical Activation of Catalytic Reactions”, C.G. Vayenas, M.M. Jaksic, S.I. Bebelis, S.G. Neophytides in *Modern Aspects of Electrochemistry* (J.O’M. Bockris, B.E. Conway and R.E. White, Eds.), No.**29**, pp. 57-202 (1996)

A35. “Electrochemical Promotion of CH_4 oxidation on Pd”, A. Giannikos, A.D. Frantzis, C. Pliangos, S. Bebelis, C. G. Vayenas, *Ionics* **4**(1-2) (1998) 53-60

A36. “Electrochemical promotion in heterogeneous catalysis”, C. G. Vayenas, S. Bebelis, *Catal. Today* **51**(3-4) (1999) 581-594

A37. “Electrochemical Activation of Catalytic Reactions using Anionic, Cationic and Mixed Conductors”, S. Bebelis, M. Makri, A. Buekenhoudt, J. Luyten, S. Brosda, P. Petrolekas, C. Pliangos, C.G.Vayenas, *Solid State Ionics* **129**(1) (2000) 33-46

A38 "Electrochemical Promotion (NEMCA) of CH_4 and C_2H_4 Oxidation on Pd|YSZ and Investigation of the Origin of NEMCA via AC Impedance Spectroscopy", A. D. Frantzis, S. Bebelis, C. G. Vayenas, *Solid State Ionics* **136-137** (2000) 863-872

A39. “In situ Controlled Electrochemical Promotion of Catalyst Surfaces: The Pd Catalysed Ethylene Oxidation”, K. Yiokari, S. Bebelis, *J. Appl. Electrochem.* **30** (11) (2000) 1277-1283

A40. “Intrinsic Kinetics of the Internal Steam Reforming of CH_4 over a Ni-YSZ-Cermet Catalyst-Electrode”, S. Bebelis, A. Zeritis, C. Tiropani, S. G. Neophytides, *Ind. Eng. Chem. Res.* **39**(12) (2000) 4920-4927

A41. “Polarization Behavior of Ni-YSZ Cermet Anodes in YSZ Fuel Cells Running on Methane under Internal Reforming Conditions”, S. Bebelis, C. Tiropani, S. Neophytides, *Ionics* **7**(1-2) (2001) 32-42

A42. “AC Impedance Study of Ni-YSZ Cermet Anodes in Methane Fuelled Internal Reforming YSZ Fuel Cells”, S. Bebelis, S. Neophytides, *Solid State Ionics* **152-153** (2002) 447-453

A43. “Electrochemical promotion of the oxidation of propane on Pt/YSZ and Rh/YSZ catalyst electrodes", N. Kotsionopoulos, S. Bebelis, *J. Appl. Electrochem.* **35**(12) (2005) 1253-1264

A44. “Non-faradaic electrochemical modification of the catalytic activity for propane combustion of Pt/YSZ and Rh/YSZ catalyst-electrodes”, S. Bebelis, N. Kotsionopoulos, *Solid State Ionics* **177**(26-32) (2006) 2205-2209

A45. “Methane oxidation on composite ruthenium electrodes in YSZ cells”, S. Bebelis, S. Neophytides, N. Kotsionopoulos, N. Triantafyllopoulos, M.T. Colomer, J. Jurado, *Solid State Ionics* **177**(19-25) (2006) 2087-2091.

A46. “Electrochemical characterization of mixed conducting and composite SOFC cathodes”, S. Bebelis, N. Kotsionopoulos, A. Mai, D. Rutenbeck, F. Tietz, *Solid State Ionics* **177**(19-25) (2006) 1843-1848.

A47. "Electrochemical characterization of perovskite-based SOFC cathodes, S. Bebelis, N. Kotsionopoulos, A. Mai, F. Tietz, *J. Appl. Electrochem.* **37**(2007) 15-20

A48. "In situ electrochemical modification of the catalytic activity for propane combustion of Pt/β"-Al_2O_3 catalyst-electrodes", S. Bebelis, N. Kotsionopoulos, *Topics in Catalysis* **44**(3) (2007) 379-389

A49. "Synthesis and Study of Ti-O Based Materials for SOFC Anode Application", V. S. Kozhukharov, Y. V. Tsvetkova, S. Bebelis, V. Ch. Kournoutis, *ECS Transactions* **7**(1) (2007) 1631-1638

A50. "Electrochemical promotion of the CO_2 hydrogenation on Pd/YSZ and Pd/β"-Al_2O_3 catalyst-electrodes", S. Bebelis, H. Karasali, C.G.Vayenas, *Solid State Ionics* **179** (27-32) (2008) 1391-1395

A51. "Cyclic Voltammetry of $La_{0.78}Sr_{0.2}FeO_{3-\delta}$ and $La_{0.78}Sr_{0.2}Co_{0.2}FeO_{3-\delta}$ electrodes interfaced to CGO/YSZ", S. Bebelis, V. Kournoutis, A. Mai, F. Tietz, *Solid State Ionics* **179**(21-26) (2008) 1080-1084

A52. "Electrochemical promotion of CO_2 hydrogenation on Rh/YSZ electrodes", S. Bebelis, H. Karasali, C.G.Vayenas, *J. Appl. Electrochem.* **38**(8) (2008) 1127-1133

A53. "AC Impedance characterization of a $La_{0.8}Sr_{0.2}Co_{0.2}Fe_{0.8}O_{3-\delta}$ electrode", V. Ch. Kournoutis, F. Tietz, S. Bebelis, *Fuel Cells* **9**(6) (2009) 852-860

A54. "Electrochemical Characterization of a $La_{0.8}Sr_{0.2}Ni_{0.4}Fe_{0.6}O_{3-\delta}$ Electrode Interfaced with $La_{9.83}Si_5Al_{0.75}Fe_{0.25}O_{26\pm\delta}$ Apatite-Type Electrolyte", H. Gasparyan, Chr. Argirusis, Ch. Szepanski, G. Sourkouni, V. Stathopoulos, T. Kharlamova, V. Sadykov, S. Bebelis, *ECS Transactions* **25**(2) (2009) 2681-2688

A55. "Electricity generation from synthetic substrates and cheese whey using a two chamber microbial fuel cell", G. Antonopoulou, K. Stamatelatou, S. Bebelis, G. Lyberatos, *Biochemical Engineering J.* **50**(1-2) (2010) 10-15

A56. "Electrochemical characterization of the Pt/β"-alumina system under conditions of electrochemical promotion of propane combustion", N. Kotsionopoulos, S.Bebelis, *J. Appl. Electrochem.* **40**(10) (2010) 1883-1891

A57. "Cyclic voltammetry characterization of a $La_{0.8}Sr_{0.2}Co_{0.2}Fe_{0.8}O_{3-\delta}$ electrode interfaced to CGO/YSZ", V. Ch. Kournoutis, F. Tietz, S.Bebelis, *Solid State Ionics* **197**(1) (2011) 13-17

A58. Synthesis and characterization of doped apatite-type lanthanum silicates for SOFC applications", H. Gasparyan, S. Neophytides, D. Niakolas, V. Stathopoulos, T. Kharlamova, V. Sadykov, O. Van der Biest, E. Jothinathan, E. Louradour, J.-P. Joulin, S. Bebelis, *Solid State Ionics* **192** (1) (2011) 158-162

A59. "Characterization and carbon tolerance of new Au-Mo-Ni/GDC cermet powders for use as anode materials in methane fuelled SOFCs", D. K. Niakolas, M. Athanasiou, S.G. Neophytides, S. Bebelis, *ECS Transactions* **35**(2) (2011) 1329-1336

A60. "Operation and characterization of a microbial fuel cell fed with pretreated cheese whey at different organic loads", A. Tremouli, G. Antonopoulou, S. Bebelis, G. Lyberatos, *Bioresource Technology* **131** (2013) 380-389

A61. "Study of the synergistic interaction between nickel, gold and molybdenum in novel modified NiO/GDC cermets, possible anode materials for CH_4 fuelled SOFCs", D.K. Niakolas, M. Athanasiou, V. Dracopoulos, I. Tsiaoussis, S. Bebelis, S.G. Neophytides, *Applied Catalysis A: General* 456 (2013) 223-232

B. ARTICLES IN SCIENTIFIC SERIES

B1. "Optimal Catalyst Distribution in Pellets with Shell Progressive Poisoning", T. Bacaros, S. Bebelis, S. Pavlou, C.G. Vayenas, *Studies in Surface Science and Catalysis* **34** ("Catalyst Deactivation 1987", P. Delmon, G.F. Froment, Eds.), Elsevier Sci. Publ. B.V., pp. 459-468 (1987)

B2. "Non-Faradaic Electrochemical Modification of Catalytic Activity: Partial Oxidation of C_2H_4 on Ag and CH_3OH on Pt", C.G. Vayenas, S. Bebelis and S. Neophytides, *Studies in Surface Science and Catalysis* **55** ("New Developments in Selective Oxidation", G. Centi and F. Trifiro, Eds.), pp. 643-652, Elsevier Sci. Publ. B. V. (1990)

B3. "Solid Electrolytes for In Situ Promotion of Catalyst Surfaces: The NEMCA Effect", C.G. Vayenas, S. Bebelis, I.V. Yentekakis, P. Tsiakaras, H. Karasali, Ch. Karavasilis, *Studies in Surface Science and Catalysis* **75** ("New Frontiers in Catalysis", L. Guczi, F. Solymosi and P. Tetenyi, Eds.), pp. 2135-2138, Elsevier Sci. Publ. B.V. (1993)

B4. "Ion Spillover as the Origin of the NEMCA Effect", C.G. Vayenas, S. Bebelis, I.V. Yentekakis, S. Neophytides, Jiang Yi, *Studies in Surface Science and Catalysis* **77** ("New Aspects of Spillover Effect in Catalysis", T. Inui, K. Fujimoto, T. Uchijima and M. Masai, Eds.), pp. 111-116, Elsevier Sci. Publ. B.V. (1993)

B5. "Hydrotreatment of Spent Lube Oils: Catalysts and Reactor Performance", C. Yiokari, S. Morphi, E. Siokou, F. Satra, S. Bebelis, C. G. Vayenas, *Studies in Surface Science and Catalysis* **106** ("Hydrotreatment and Hydrocracking of Oil Fractions", G. F. Froment, B. Delmon and P. Grams, Eds.), pp. 323 - 331, Elsevier Science B. V. (1997)

B6. "In Situ Electrochemically Controlled Promotion of Complete and Partial Oxidation Reactions", C.G. Vayenas, S. I. Bebelis, *Studies in Surface Science and Catalysis* **110** (3rd World Congress on Oxidation Catalysis, R.K. Grasseli, S. T. Oyama, A. M. Gaffney & J.E. Lyons, Eds.), pp. 77 - 92, Elsevier Science B.V. (1997)

B7. "Direct STM, XPS and TPD Observation of Spillover Phenomena over mm Distances on Metal Catalyst Films Interfaced with Solid Electrolytes", C.G. Vayenas, R.M. Lambert, S. Ladas, S. Bebelis, S. Neophytides, M.S. Tikhov, N.C. Filkin, M. Makri, D. Tsiplakides, C. Cavalca, K. Besocke, *Studies in Surface Science and Catalysis* **112** *(*"Spillover and Migration of Surface Species on Catalysts"*,* Can Li and Qin Xin, Eds.), pp. 39 - 47, Elsevier Sci. B.V. (1997)

B8. "Electrocatalysis, Catalysis and Electrochemical Promotion in Solid Electrolytes", C.G. Vayenas, S.I. Bebelis, *NATO ASI SERIES: Oxygen Ion and Mixed Conductors and their Technological Applications* (H.L. Tuller et al., Eds.), pp. 123-164, Kluwer Academic Publishers, Netherlands (2000)

B9. "Nanoscale Materials via Intercalation", V. Kozhukharov, N. Velinov, N. Brashkova, S. Bebelis, *Nanoscience & Nanotechnology* (E. Balabanova & I. Dragieva, Eds.), Vol. **3**, pp.227-229, Heron Press, Sofia, Bulgaria (2003)

C. BOOKS AND CHAPTERS IN BOOKS

C1. “Electrocatalysis and Electrochemical Reactors”, C.G. Vayenas, S. Bebelis, I.V.Yentekakis, S. N. Neophytides in: *CRC Handbook of Solid State Electrochemistry* (P.J. Gellings & H.J.M. Bouwmeester, Eds.), Chapter 13, pp.447-483, CRC Press Inc. (1996)

C2. “Electrochemical Activation of Catalysis”, C. G. Vayenas, S. Bebelis, C. Pliangos, S. Brosda, D. Tsiplakides, ISBN 0-306-46719-4, Kluwer Academic/Plenum Publishers, New York (2001), pp.1-574

C3. “Doped Lanthanum Silicates with the Apatite Structure as Oxide-Ion Conducting Electrolytes: Synthesis, Characterization and Application for Design of Intermediate Temperature Solid Oxide Fuel Cell”, V.A. Sadykov, T.S. Kharlamova, S.N. Pavlova, V.S. Muzykantov, A.V. Ishchenko, T.A. Krieger, O.B. Lapina, N. Uvarov, M. Chaikina, Yu. Pavlyukhin, Ch. Argirusis, S. Bebelis, H. Gasparyan, V. Stathopoulos, E. Jothinathan, O. Van der Biest, In: *“Lanthanum: Compounds, Production and Applications”* (R.J. Moore, Ed.), Chapter 1, pp. 1-108, ISBN: 978-1-61728-111-2 (Hardcover) & ISBN: 978-1-61728-333-8 (e-book), Nova Science Publishers, Inc., Ser.: Chemistry Research and Applications, New York (2011)

C4. “Heterogeneous Catalysis” (in Greek), S.Bebelis and S. Ladas, pp. 1-168, University of Patras Editions, Patras, Greece (1998)

C5. “Electrochemistry” (in Greek), S. Bebelis, pp. 1-208, 2nd Edition, Hellenic Open University Editions, Patras, Greece (2008)

D. ARTICLES IN PROCEEDINGS OF INTERNATIONAL CONFERENCES

D1. "The Use of SOFC as Chemical Reactor: Non-Faradaic Catalysis", S. Bebelis, Ch. Karavasilis, H. Karasali, P. Tsiakaras, I.V. Yentekakis, C.G. Vayenas, *Proceedings of the 2nd International Conference on Solid Oxide Fuel Cells* (F. Grosz, P. Zegers, S.C. Singhal and O. Yamamoto, Eds.) Athens, Greece, pp. 179-183, Official Publications of the EEC, Luxembourg (1991)

D2. "The Use of SOFC for Chemical Cogeneration and for Electrochemical Promotion (NEMCA)", S. Bebelis, I.V. Yentekakis, S. Neophytides, P. Tsiakaras, H. Karasali, C.G. Vayenas, *Proceedings of the 3rd International Symposium on Solid Oxide Fuel Cells*, (S.C. Singhal and H. Iwahara, Eds.) Proceedings Volume **93-4**, pp. 926 - 937, The Electrochemical Society Inc., Pennington, NJ (1993)

D3. "Non-Faradaic Electrochemical Modification of Catalytic Activity in Solid Electrolyte Cells", C.G. Vayenas, S. Bebelis, I.V. Yentekakis, S. Neophytides, Ch. Karavasilis, Jiang Yi, *Proceedings of 14th Risø International Symposium on Materials Science* (“High Temperature Electrochemical Behaviour of Fast Ionic and Mixed Conductors”), (F.W. Poulsen, J.J. Bentzen, T. Jacobsen, E. Skou and M.J.L. Østergard, Eds.), pp. 175-191, Risø National Lab., Roskilde, Denmark (1993)

D4. “Kinetic and Electrokinetic Behaviour of the Ni-YSZ-Cermet Electrode in the Methane Steam Reforming Reaction: Effect of the Presence of H_2S in the Gas Phase”, S.Bebelis, S.Neophytides, C.G.Vayenas, *Proceedings of the 1st European SOFC Forum* (U. Bossel, Ed.), **V.1**, pp.197-206, Lucern, Switzerland (1994)

D5. "Non-Faradaic Electrochemical Modification of Catalytic Activity" C. G. Vayenas, S. Bebelis, I. V. Yentekakis, S. Neophytides, Y. Jiang, *Proceedings of the 2nd International Symposium on Ionic and Mixed Conducting Ceramics* (T.A. Ramanarayanan, W.L. Worrell and H.L. Tuller, Eds.), Vol. **94-12**, pp 230-237, The Electrochemical Society Inc., Pennington, NJ (1994)

D6. "Catalysis, Electrocatalysis and Electrochemical Promotion of the Steam Reforming of Methane one Ni Film and Ni-YSZ cermet Anodes", I.V. Yentekakis, Y. Jiang, S. Neophytides, S. Bebelis, C.G. Vayenas, *Proceedings of the 2nd European SOFC Forum* (B. Thorstensen, Ed.), Vol. **1**, pp. 131-141, Oslo, Norway (1996).

D7. "Non-Faradaic Electrochemical Modification of Catalytic Activity of Metal Films Deposited on Solid Electrolytes", I.V. Yentekakis, S. Bebelis, S. Neophytides, C.G. Vayenas, *Proceedings of* the *Symposium on Thin Solid Ionic Devices and Materials* (J.B. Bates, Ed.), Vol. **95-22**, pp. 87-101, The Electrochemical Society Inc, Pennington, NJ (1996).

D8. "The Role of Solid Electrolyte Support on the NEMCA Behavior of Ethylene Oxidation on Pt", M. Makri, A. Buekenhoudt, J. Luyten, S. Brosda, C. Pliangos, S. Bebelis, C.G.Vayenas, in: *Proceedings of the 5th European Symposium on Electrochemical Engineering* (A. A. Wragg, Ed.), *Institution of Chemical Engineers Symposium Series (145)*, Exeter, U.K. (1999), pp. 269-280

D9. "Electrochemical characterization of perovskite-based SOFC cathodes", S. Bebelis, N. Kotsionopoulos, A. Mai, F. Tietz, *Proceedings of the 7th European Symposium on Electrochemical Engineering* ("Multiple faces of Electrochemical Engineering"), pp. 219-224, Toulouse, France (2005)

D10. "Electrochemical Promotion of the CO_2 hydrogenation on Rh/YSZ electrodes", S. Bebelis, H. Karasali, C.G. Vayenas, *Proceedings of the 1st International Conference on the Origin of Electrochemical Promotion of Catalysis*, Thessaloniki, Greece (2007)

D11. "Electrochemical characterization of a $La_{0.78}Sr_{0.2}Fe_{0.8}O_{3-\delta}$ electrode", S. Bebelis, V. Kournoutis, A. Mai, F. Tietz, *Proceedings of the 1st International Conference on the Origin of Electrochemical Promotion of Catalysis*, Thessaloniki, Greece (2007)

D12. "Electrochemical characterization of a $La_{0.8}Sr_{0.2}Co_{0.2}Fe_{0.8}O_{3-\delta}$ electrode", S. Bebelis, V. Ch. Kournoutis, A. Mai, F. Tietz, *Proceedings of the 8th European Symposium on Electrochemical Engineering* ("Process intensification through understanding of microscale phenomena") – *CHISA 2008*, ISBN 978-80-02-02053-0, pp. 181-192, Prague, Czech Republic (2008)

D13. "Electricity generation from cheese whey using a microbial fuel cell", G. Antonopoulou, K. Stamatelatou, S. Bebelis, G. Lyberatos, *Proceedings of the 18th European Symposium on Electrochemical Engineering* ("Process intensification through understanding of microscale phenomena") – *CHISA 2008*, ISBN 978-80-02-02053-0, pp. 155-166, Prague, Czech Republic (2008)

D14. "Using cheese whey as a source of energy in a microbial fuel cell", G. Antonopoulou, K. Stamatelatou, S. Bebelis, G. Lyberatos, *Proceedings (CD) of the 11th International Conference on the Environmental Science and Technology (CEST 2009),* pp. A40-A47, Chania, Crete, Greece (2009)

D.15 "Characterization of high temperature electrochemical systems", S. Bebelis, *Proceedings of the 19th International Congress of Chemical and Process Engineering, CHISA 2010 and 7th European Congress of Chemical Engineering, ECCE-7*, ISBN 978-80-02-02246-6, pp.132-133, Prague, Czech Republic (2010)

D16. September 2012, "Charge transfer fundamentals: Thermodynamics and kinetics", S. Bebelis, *Book of Abstracts: 6th European Summer School on Electrochemical Engineering* (Z. Mandic, A. Dekanski, Eds. - Published by the Faculty of Chemical Engineering and Technology, University of Zagreb, Croatia), ISBN:978-953-6470-60-0, pp. 59-70, Zadar, Croatia (2012)

E. PATENTS

1. European Patent 0480116 "Use of Metal-Solid Electrolyte Catalysts", C.G. Vayenas, S. Bebelis, I.V. Yentekakis and P. Tsiakaras (1990)

INVITED LECTURES

In International Conferences and Summer Schools

1. September 1991, *2nd European Conference on Catalysis "Paul Sabatier",* Domaine St. Jacques -Ottrott, St. Nabor, France (invited participation)
2. October 1991, "Non-Faradaic Electrochemical Modification of Catalytic Activity and the Dependence of Catalytic Rates on Catalyst Work Function" (Plenary lecture), *7th International Symposium on Heterogeneous Catalysis*, Burgas, Bulgaria
3. September 1993, "Non-Faradaic Electrochemical Modification of Catalytic Activity", (Keynote lecture), *International Symposium on Progress in Electrocatalysis*, Ferrara, Italy
4. September 1995, "In situ controlled promotion of catalyst surfaces: The effect of Non-Faradaic Electrochemical Modification of Catalytic Activity" (Keynote Lecture), *European School on Electrochemical Engineering*, Toulouse, France
5. October 1996, "Non-Faradaic Electrochemical Modification of Catalytic Activity and the Dependence of Catalytic Rates on Catalyst Work Function" (Plenary lecture), *7th International Symposium on Heterogeneous Catalysis*, Varna, Bulgaria
6. September 2002, "Electrochemical Promotion of Catalysis: Interfacing Catalysis and Electrochemistry" (Invited lecture), *9th Euroconference on Ionics*, Ixia, Rhodes, Greece
7. September 2004, "Electrochemical Promotion of Catalysis" (Keynote Lecture), *International Society of Electrochemistry - 55th Annual Meeting*, Thessaloniki, Greece
8. May 2007, "Electrochemical characterization of solid electrolyte cells" (Invited lecture) *Training Course: Basics and applications of Solid State Electrochemistry (BASE)*, University of Patras, Greece
9. September 2008, "Introduction to fuel cells: Fundamentals of chemical kinetics and thermodynamics" (Invited lecture), *5th International Solid Oxide Fuel Cell Summer School* ("Introduction to Solid Oxide Fuel Cell Science and Technology), Chania, Greece
10. September 2009, "Electrochemical thermodynamics and kinetics", (Invited lecture), *5th European Summer School on Electrochemical Engineering*, Almagro, Spain
11. August – September 2010, "Characterization of high temperature electrochemical systems" (Keynote Lecture), *19th International Congress of Chemical and Process Engineering (CHISA 2010) & 7th European Congress on Chemical Engineering (ECCE-7)*, Prague, Czech Republic
12. September 2012, "Charge transfer fundamentals: Thermodynamics and kinetics" (Invited lecture), *6th European Summer School on Electrochemical Engineering*, Zadar, Croatia

In Panhellenic Conferences and Meetings

1. December 1999, "Conductive ceramic materials and their applications in fuel cells and in catalysis" (Invited lecture given in Greek), C.G.Vayenas and S.Bebelis, *2nd Panhellenic Conference on Ceramic Materials,* Athens, Greece
2. November 2009, "Fuel Cells" (Iinvited lecture given in Greek), S.Bebelis, *Meeting on «Materials for Energy Applications»*, Academy of Athens (Energy Committee), Athens, Greece

ORGANIZATION OF CONFERENCES AND SUMMER SCHOOLS

Member or Chairman of the Organizing Committee

A. International Conferences and Summer Schools

1. Member of the Program Committee & Local Organizing Committee of the *12th International Conference on Solid State Ionics (SSI-12)*, Chalkidiki, Greece,6-12 June 1999
2. Chairman of the Organizing Committee of the *3rd European Summer School on Electrochemical Engineering (3rd ESSEE)*, Patras, Greece, 14-19 September 2003 (Co-Chair: Prof. Ch. Comninellis)
3. Member of the Local Organizing Committee of the *55th Annual Meeting of the International Society of Electrochemistry (ISE 2004)* and of the Organizing Committee of *Symposium 11 ("Industrial Electrochemistry and Electrochemical Engineering")* of *ISE 2004*, Thessaloniki, Greece, 19-24 September 2004
4. Chairman of the Organizing Committee of the *1st Summer School on Solid Oxide Fuel Cells Technology*, Patras, Greece, 5 -10 September 2004 (Co-Chair: Dr. S. Neophytides, FORTH/ICE-HT)
5. Chairman of the Organizing Committee of the *3rd Summer School on Solid Oxide Fuel Cells Technology*, Lemnos, Greece, 3-8 September 2006 (Co-Chair: Dr. S. Neophytides, FORTH/ICE-HT)
6. Member of the Organizing Committee of the *4th Real-SOFC Summer School (SOFC 2007)- "Manufacturing SOFC-From the laboratory to the industry and into the market place"*, Varna, Bulgaria, 2 – 7 September 2007
7. Chairman of the Organizing Committee of the *9th European Symposium on Electrochemical Engineering (9th ESSEE)*, Chania, Greece, 19-23 June 2011(Co-Chair: Prof. N. Kouloumbi)

B. Panhellenic Conferences

8. Member of the Organizing Committee of the *3rd Panhellenic Catalysis Symposium*, Patras, Greece, 15 -17 November 1993
9. Member of the Organizing Committee of the *1st Panhellenic Scientific Conference of Chemical Engineering*, Patras, Greece, 29-31 May 1997
10. Member of the Organizing Committee of the *7th Panhellenic Catalysis Symposium*, Edessa, Greece, 4-5 October 2002
11. Member of the Organizing Committee of the *9th Panhellenic Catalysis Symposium*, Lefkas, Greece, 6 - 7 October 2006
12. Member of the Organizing Committee of the *7th Panhellenic Scientific Conference of Chemical Engineering*, Patras, Greece, 3-5 June 2009

Member the Scientific Committee

A. International Conferences and Summer Schools

1. Member of the International Advisory Board of the *6th European Symposium on Electrochemical Engineering*, Düsseldorf, Germany, 16-18 September 2002
2. Member of the Scientific Committee of the *55th Annual Meeting of the International Society of Electrochemistry (ISE 2004)*, Theessaloniki, Greece, 19-24 September 2004
3. Member of the Scientific Committee of the *2nd Real-SOFC Summer School ("Characterization techniques for SOFC materials, cells, stacks")*, Ovronaz, Switzerland, 11-16 September 2005
4. Member of the Scientific Board of the *7th European Symposium on Electrochemical Engineering*, Toulouse, France, 3-5 October 2005
5. Member of the Scientific Advisory Committee of the *3rd Real-SOFC Workshop on "Modelling and understanding degradation in SOFCs"*, Weggis (Lake Lucerne), Switzerland, 2-3 July 2006

6. Member of the Scientific Board of the *8th European Symposium on Electrochemical Engineering*, Prague, Czech Republic, 24-28 August 2008
7. Member of the Scientific Committee of the 5th European Summer School on Electrochemical Engineering, Almagro, Spain, 6-11 September 2009
8. Member of the Scientific Committee of the *8th European Congress of Chemical Engineering*, Berlin, Germany, 25-29 September 2011
9. Member of the Scientific Committee and Advisory Board of the *6th European Summer School on Electrochemical Engineering*, Zadar, Croatia, 16-21 September 2012

B. Panhellenic Conferences

10. Member of the Scientific Committee of the *2nd Panhellenic Scientific Conference of Chemical Engineering*, Thessaloniki, Greece, 27- 29 May 1999
11. Member of the Scientific Committee of the *3rd Panhellenic Scientific Conference of Chemical Engineering*, Athens, Greece, 31 May -2 June 2001
12. Member of the Scientific Committee of the *10th Panhellenic Catalysis Symposium*, Metsovo, Greece, 3-4 October 2008
13. Member of the Scientific Committee of the *12ου Panhellenic Catalysis Symposium*, Georgioupoli, Chania, Greece, 25 - 27 October 2012
14. Member of the Scientific Committee of the *9ου Panhellenic Scientific Conference of Chemical Engineering*, Athens, Greece, 23 - 25 May 2013

PhD STUDENTS SUPERVISION

1. *Nikolaos Kotsionopoulos*
   PhD (2007), Department of Chemical Engineering, University of Patras
   PhD title: "Electrochemical promotion and cogeneration of electric energy and useful chemical products in solid oxide electrochemical cells"
   Current position: Postdoctoral Researcher at the European Commission Joint Research Centre - Institut for Energy and Transport, Cleaner Energy Unit, Petten, The Netherlands

2. *Vassileios Kournoutis*
   PhD (2010), Department of Chemical Engineering, University of Patras
   PhD title: "Advanced perovskitic electrodes for energy and catalytic applications"

3. *Hripsime Gasparyan*
   PhD (2012), Department of Chemical Engineering, University of Patras
   PhD title: "Apatite based materials for solid oxide fuel cell (SOFC) and catalytic applications"
   Current position: Postdoctoral Researcher at the University of Liverpool, Department of Chemistry (Prof. M. Rosseinsky's Group), Liverpool, U.K.

4. *Alexandros Safakas*
   PhD student (2008 -), Department of Chemical Engineering, University of Patras
   PhD title: "Development and characterization of electrodes for application in intermediate temperature solid oxide fuel cells"

RESEARCH FUNDING

1994-1995 Bilateral cooperation between Greece and France – Exchange of personnel
Title: "Study of sulfur poisoning, resistance to poisoning and regeneration of catalysts for hydrogenation reactions and for fuel cells applications"

1996-1998 PENED 95 Programme, General Secretariat for Research and Technology, Greece
Title: "Internal reforming of natural gas (methane) in solid oxide fuel cells Study of the catalytic and electrocatalytic behavior of the anode"

1995-1997 European Economic Community, INTAS 94 Programme
Title: "Fundamental Studies of Electrochemical Promotion in Heterogeneous Catalysis"

1997-1999 Bilateral cooperation between Greece and Germany - Exchange of personnel
Τίτλος: "Development of an integrated system for in situ selective determination of gaseous pollutants"

1998 -2001 "C. Caratheodory" Programme, Research Committee, University of Patras, Greece
Title: "Selective methane oxidation in solid oxide fuel cells (SOFCs) for cogeneration of electric energy and useful chemical products"

1999-2001 Bilateral R&D cooperation between Greece and Spain
Title: "Preparation and characterization of novel electrodes for cogeneration of electrical energy and useful chemical products in solid oxide fuel cells "

1999-2001 Bilateral R&D cooperation between Greece and Russia
Title: "Cogeneration of electrical energy and useful chemical products in methane-fuelled solid oxide fuel cells"

1999-2001 PENED 99 Programme, General Secretariat for Research and Technology, Greece
(Scientific leader of the University of Patras group)
Title: "Fabrication of silicon carbide films via electrochemical vapor deposition"

2003 -2006 "C. Caratheodory" Programme, Research Committee, University of Patras, Greece
Title: "Advanced perovskitic electrodes for applications in solid oxide fuel cells"

2002-2007 "Herakleitos" Programme, ΕΠΕΑΕΚ ΙΙ
Title: "Cogeneration of electrical energy and useful chemical products in solid oxide fuel cells"

2004-2008 Integrated Project No.: SES6-CT-2003-502612, 6th Framework Programme
Title: "Realizing Reliable, Durable Energy Efficient and Cost Effective SOFC Systems" (Real-SOFC)
(Scientific Leader of the University of Patras Group)

2006-2009 Specific Targeted Project NMP3-CT-2006-033410
(Scientific leader of the University of Patras group)
Title: "Novel materials for silicate-based fuel cells" (MatSILC)

2010-2013 7th Framework Programme, Collaborative Project 245355 (*Coordinator)*
Title: "Understanding and minimizing anode degradation in hydrogen and natural gas fuelled SOFCs" (ROBANODE)

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