Alexandros Katsaounis, Professor

University of Patras, Department of Chemical Engineering
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Personal Details

Date of Birth: February 12, 1977
Marital Status: Married with two children

Education

1999-2004 PhD in Chemical Engineering
University of Patras, Dept.of Chemical Engineering, Greece
Thesis title: Study of the Electrochemical Promotion of Catalysis using temperature programmed techniques (TPD, TPO and transient experiments) under ultra-high vacuum and atmospheric pressure conditions.

1999-2004 Diploma in Chemical Engineering
University of Patras, Dept.of Chemical Engineering, Greece

Professional Experience

2019 - Professor at University of Patras, Department of Chemical Engineering
2015 - 2019 Associate Professor at University of Patras, Department of Chemical Engineering,
2011 - 2015 Assistant Professor at University of Patras, Department of Chemical Engineering
2010 Visitor Researcher at Ecole Polytechnique Fédérale de Lausanne (EPFL)
Institute of Chemical Sciences and Engineering, Lausanne, Switzerland
2006 - 2010 Lecturer at Technical University of Crete, Department of Environmental Engineering
2004 - 2006 Senior Researcher at University of Patras, Department of Chemical Engineering,

Member in Organizations / Editorial Boards

- International Society of Electrochemistry (ISE)
- The Electrochemical Society (ECS)
- Working Party on Electrochemical Engineering (European Federation of Chemical Engineering)
- Hellenic Federation of Chemical Engineering
- Journal of Chemical Technology and Biothechnology, member of the editorial board

Current Scientific Research

1. Mechanistic Studies on the origin of Electrochemical Promotion of Catalysis (EPOC or NEMCA effect)
2. Electrochemical Promotion of CO_2 Hydrogenation to high value chemicals and fuels
3. Preparation and electrochemical characterization of Dimensionally Stable Anodes (DSA) for electrochemical and/or photoelectrochemical treatment of wastewaters and for direct alcohol fuel cells.
4. Triode operation of low temperature fuel cells under poisoning conditions
5. Preparation, characterization and development of electrochemical sensors for phenolic compounds in wastewater

Chapters in Books

1. A. Katsaounis, S. Brosda and C.G. Vayenas, "Electrocatalysis" in Encyclopaedia of Electrochemistry, Vol. 5, Wiley-VCH GmbH & Co KGaA, editors A.J. Bard, M. Stratmann etc, 2008

2. A. Katsaounis, "Air Treatment Technologies" in Introduction to Environmental Engineering Science (in greek), Technical University of Crete, 2008

3. C.G. Vayenas, A. Katsaounis, S. Brosda and A. Hammad "Electrochemical Modification of Catalytic Activity" in "Handbook of Heterogeneous Catalysis", 2nd edition, editors G. Ertl, H. Knötzinger, F. Schüth and J. Weitcamp, Weiheim, 2008

4. A. Katsaounis and S. Souentie ‘’ In-Cell Mediated (via Active Chlorine) Electrochemical Oxidation of Organic Pollutants in Water Using DSA Electrodes’’ in ‘’Encyclopedia of Applied Electrochemistry’’, editors R.F. Savinell, Ken-ichiro Ota, G. Kreysa, Springer 2014

5. C.G. Vayenas, A. Katsaounis, S. Brosda and F. Sapountzi, ‘’Electrochemical Promotion of Catalytic Reactions’’ in ‘’Encyclopedia of Applied Electrochemistry’’, editors R.F. Savinell, Ken-ichiro Ota, G. Kreysa, Springer 2014

Invited Lectures

1. *"Recent advances in Electrochemical Promotion of Catalysis", 4th Training course: Trends in Electrochemical Promotion of Catalysis (TEPOC), Almagro, Ciudad Real, Spain, 24-26/11/2009*

2. *"Effectiveness factor of isopropanol oxidation and various redox couples on IrO_2 based electrodes of different loading"*, 60th International Society of Electrochemistry Annual Meeting,Cina, 16-21/8/2009

3. *"Temperature Programmed Desorption Techniques for the origin of Electrochemical Promotion of Catalysis (EPOC)"*, University of Belgrade, Faculty of Technology and Metallurgy, 8/12/2008, Serbia

4. *"Electrochemical Promotion of Catalysis (EPOC)… on the way to explore the mechanism of promotion and develop the next generation of electropromoted reactors",* 8th European Symposium on Electrochemical Engineering, Prague, 24-28/8/2008

5. *"Characterization techniques for electrode applications in PEM fuel cells and electropromoted reactors",* 1st training course: Basics and Applications of Solid State Electrochemistry (BASE), Patras, Greece, 2007

Patents

C.G. Vayenas, S. Balomenou, D. Tsiplakides, **A. Katsaounis**, S. Brosda, G. Foti, C. Comninellis, S. Thieman-Handler, B. Cramer, World Intellectual Property Organization (WO/2005/072860).

Awards

Carl Wagner Medal Award in Electrochemical Engineering, European Federation of Chemical Engineering, Working Party on Electrochemical Engineering, 2008.

Publications in Scientific International Journals

P80. Ch. Chatzilias, E. Martino, C.G. Vayenas, G. Kyriakou, A. Katsaounis, "A low temperature SOFC as self-promoted reactor for CO_2 catalytic hydrogenation", J Applied Catalysis B Environmental, in press

P79. S. Giannakopoulos, P. Kokkinos, B. Hasa, Z. Frontistis, A. Katsaounis, D. Mantzavinos, "Electrochemical Oxidation of Pharmaceuticals on a Pt–SnO_2/Ti Electrode", Electrocatalysis, 13(4) (2022) 363–377

P78. I.A. Vasiliadou, A. Kalogiannis, A. Spyridonidis, A. Katsaounis, K. Stamatelatou, "Effect of applied potential on the performance of an electroactive methanogenic biocathode used for bioelectrochemical CO_2 reduction to CH_4", Journal of Chemical Technology and Biotechnology, 97(3) (2022) 643–652

P77. D. Zagoraios, N. Kokkinou, G. Kyriakou, A. Katsaounis, "Electrochemical control of the RWGS reaction over Ni nanoparticles deposited on yttria stabilized zirconia", Catalysis Science and Technology, 12(6) (2022) 1869–1879

P76. B. Hasa, E. Martino, S. Tsatsos, J. Vakros, G. Kyriakou, A. Katsaounis, "Non-precious Sn as alternative substitute metal in graphene-based catalysts for methanol electrooxidation", Journal of Applied Electrochemistry, 52(3) (2022) 509–520

P75. Ch. Chatzilias, E. Martino, S. Tsatsos, G. Kyriakou, A. Katsaounis, C.G. Vayenas, "Kinetic study of CO_2 hydrogenation on Ru/YSZ catalyst using a monolithic electropromoted reactor (MEPR)", Chemical Engineering Journal, 430 (2022) 132967

P74. C. Apostolopoulos, A. Drakakaki, A. Katsaounis, M. Bardi, K.F. Koulouris, "Parameters determining the quality of corrosion damage, induced by impressed current density technique, on steel reinforcement", International Journal of Structural Integrity, 12(4) (2021) 548-561

P73. A.A. Khechfe, M.M. Sullivan, D. Zagoraios, A. Katsaounis, C.G. Vayenas, Y. Román-Leshkov, "Non-Faradaic Electrochemical Promotion of Brønsted Acid-Catalyzed Dehydration Reactions over Molybdenum Oxide", ACS Catalysis, 12(2) (2022) 906–912

P72. D. Zagoraios, Ch. Ioakeimidis, G. Kyriakou and A. Katsaounis, "Glassy Carbon Electrochemical Sensor for Gallic and Vanillic Acid Detection in Aqueous Solutions", Applied Sciences, 11 (2021) 8045-8047

P71. A.K. Benekos, M. Tsigara, S. Zacharakis, I–E. Triantaphyllidou, A.G. Tekerlekopoulou, A. Katsaounis and D.V. Vayenas, "Combined electrocoagulation and electrochemical oxidation treatment for groundwater denitrification", Journal of Environmental Management, 297 (2021) 113387

P70. D. Grigoriou, D. Zagoraios, A. Katsaounis and C.G. Vayenas, "The role of the promoting ionic species in electrochemical promotion and in metal-support interactions", Catalysis Today, 363 (2021) 122–127

P69. C. Chatzilias, E. Martino, A. Katsaounis, C.G. Vayenas, "Electrochemical promotion of CO_2 hydrogenation in a monolithic electrochemically promoted reactor (MEPR) ", J Applied Catalysis B Environmental, 284 (2021) 119695

P68. D. Zagoraios, Ch. Panaritis, Aikaterina Krassakopoulou, E.A. Baranova, A. Katsaounis and C.G. Vayenas, "Electrochemical Promotion of Ru Nanoparticles deposited on a Proton Conductor Electrolyte during CO_2 Hydrogenation", Applied Catalysis B: Environmental 276 (2020) 119148

P67. D. Zagoraios, A. Athanasiadi, I. Kalaitzidou, S. Ntais, A. Katsaounis, A. Caravaca, P. Vernoux, C.G.Vayenas, "Electrochemical promotion of methane oxidation over nanodispersed Pd/Co_3O_4 catalysts", Catalysis Today 355 (2020) 910–920

P66. D. Zagoraios, S. Tsatsos, S. Kennou, C.G. Vayenas, G. Kyriakou, and A. Katsaounis, "Tuning the RWGS Reaction via EPOC and In Situ Electro-oxidation of Cobalt Nanoparticles", ACS Catalysis 10, 24 (2020) 14916–14927

P65. B. Hasa, E. Martino, J. Vakros, G. Trakakis, C. Galiotis, A. Katsaounis, "Effect of Carbon Support on the Electrocatalytic Properties of Pt−Ru Catalysts", ChemElectroChem (front cover), 6 (2019) 4921

P64. A. Masouras, D. Giannopoulos, B. Hasa, A. Katsaounis, V. Kostopoulos, "Hybrid graphene nanoplatelet/manganese oxide electrodes for solid-state supercapacitors and application to carbon fiber composite multifunctional materials", Journal of Energy Storage, 23 (2019) 515-525

P63. I. Kalaitzidou, D. Zagoraios, S. Brosda, A. Katsaounis, P. Vernoux, C.G. Vayenas, "Electrochemical promotion of methane oxidation on Pd nanoparticles deposited on YSZ", Materials Today: Proceedings, 5 (2018), 27345–27352

P62. E. Martino, A. Gusev, A. Katsaounis and C.G. Vayenas, "Steady State Multiplicities in Low Temperature PEM Fuel Cells", Materials Today: Proceedings, 5 (2018), 27397-27405

P61. B. Hasa, J. Vakros, A. Katsaounis, "Study of low temperature alcohol electro-reforming", Materials Today: Proceedings, 5 (2018), 27337-27344

P60. M. Makri, A. Symillidis, D. Grigoriou, A. Katsaounis and C. G. Vayenas, "Electrochemical Promotion of CO_2 reduction on a dispersed Ru/YSZ catalyst supported on YSZ solid electrolyte", Materials Today: Proceedings, 5 (2018) 27617-27625

P59. A. Katsaounis, D. Teschner, S. Zafeiratos, "The effect of polarization and reaction mixture on the Rh/YSZ oxidation state during ethylene oxidation studied by Near Ambient Pressure XPS", Topics in Catalysis, 61 (2018) 2142-2151

P58. B. Hasa, J. Vakros, A. Katsaounis, "Effect of TiO_2 on Pt-Ru-based anodes for methanol electroreforming", Applied Catalysis B: Environmental, 237 (2018) 811-816

P57. A. Kotsiras, I. Kalaitzidou, D. Grigoriou, A. Symillidis, M. Makri, A. Katsaounis, C.G. Vayenas, "Electrochemical promotion of nanodispersed Ru-Co catalysts for the hydrogenation of CO_2", Applied Catalysis B: Environmental, 232 (2018) 60-68

P56. M. Athanasiou, B. Hasa, J. Vakros, L. Sygellou, A. Katsaounis, "Electrochemical promotion of carbon supported Pt, Rh and Pd catalysts for H_2 oxidation in aqueous alkaline media", J. Chem. Technol. Biotechnol. 93(6) (2018) 1542-1548

P55. I. Drakakaki, B. Hasa, A. Katsaounis and Ch. Apostolopoulos, "Resistance and Mechanical Characteristics of dual-phase steel B500c, after shot blasting processes", International Journal of Structural Integrity, 8(5) (2017) 544-564

P54. E. Martino, G. Koilias, M. Athanasiou, A. Katsaounis, Y. Dimakopoulos, J. Tsamopoulos and C.G.Vayenas, "Experimental investigation and mathematical modeling of triode PEM fuel cells", in preparation, Electrochimica Acta 248 (2017) 518-533.

P53. V. Markou, M.-C. Kontogianni, Z. Frontistis, A.G. Tekerlekopoulou, A. Katsaounis, D. Vayenas, "Electrochemical treatment of biologically pre-treated dairy wastewater using dimensionally stable anodes", Journal of Environmental Management 202 (2017) 217-224

P52. D. Niakolas, S. Neophytides, C.G. Vayenas, A. Katsaounis, N. Athanasopoulos, S. Balomenou, K-M Papazisi, D. Tsiplakides, M. Schautz, "Investigation od advanced components in a high pressure single cell electrolyser for the development of a HP-ELY stack as part of a regenerative fuel cell system", E3S Web of Conferences 16 (2017) 09004.

P51. Z. Frontistis, M. Antonopoulou, M. Yazirdagi, Z. Kilin, I. Konstantinou, A. Katsaounis and D. Mantzavinos, "Boron-doped diamond electrooxidation of ethyl paraben: The effect of electrolyte on by-products distribution and mechanisms", Journal of Environmental Management, 195 (2017) 148156

P50. I. Kalaitzidou, M. Makri, D. Theleritis, A. Katsaounis and C.G. Vayenas, "Comparative study of the electrochemical promotion of CO_2 hydrogenation on Ru using Na^+, K^+, H^+ and O^{2-} conducting solid electrolytes", Surface Science, 646 (2016) 194-203

P49. M. Makri, A. Katsaounis and C.G. Vayenas, "Electrochemical Promotion of CO_2 hydrogenation on Ru catalyst-electrodes supported on β"-$Al_2O_3(K^+)$ solid electrolyte", Electrochimica Acta, 179 (2015) 556-564

P48. B. Hasa, E. Kalamaras, E. Papaioannou, I. Vakros and A. Katsaounis, "Effect of TiO_2 Loading on PtRu catalysts during methanol electrooxidation", Electrochimica Acta, 179 (2015) 578-587

P47. I. Kalaitzidou, A. Katsaounis, T. Norby and C.G. Vayenas, "Electrochemical Promotion of the hydrogenation of CO_2 on Ru deposited on a BZY proton conductor", Journal of Catalysis, 331 (2015) 98-109

P46. D. Theletiris, M. Makri, A. Caravaka, S. Souentie, A. Katsaounis and C.G. Vayenas, ‘’Comparative study of the electrochemical promotion of CO_2 hydrogenation over Ru supported catalysts using electronegative and electropositive promoters’’ ChemElectroChem, 1 (2014) 254–262

P45. E.I. Papaioannou, E. Siokou, Ch. Comninellis and A. Katsaounis, ‘’Pt-Ir binary electrodes for direct oxidation of methanol in low temperature fuel cells (DMFCs)’’ Electrocatalysis 4 (2013) 375-381

P44. B. Hasa, E. Kalamaras, E.I. Papaioannou, L. Sygellou and A. Katsaounis, ‘’Electrochemical oxidation of alcohols on Pt-TiO_2 binary electrodes’’ International Journal of Hydrogen Energy, 38 (2013) 15395-15404

P43. S. Souentie, M. Athanasiou, D.K. Niakolas, A. Katsaounis, S.G. Neophytides, C.G. Vayenas, ‘’Mathematical modeling of Ni/GDC and Au–Ni/GDC SOFC anodes performance under internal methane steam reforming conditions’’ Journal of Catalysis, 306 (2013) 116-128

P42. V.M. Daskalaki, H. Marakas, D. Mantzavinos, A. Katsaounis, P. Gikas, ‘’Use of seawater for the Boron-doped diamond electrochemical treatment of diluted vinasse wastewater’’ Water Science and Technology 68 (2013) 2344–2350

P41. D. Venieri, E. Chatzisymeon, E. Politi, S. Sofianos, A. Katsaounis, D.Mantzavinos, ‘’Photoelectrocatalytic disinfection of water and wastewater: performance evaluation by qPCR and culture techniques’’ Journal of Water and Health, 11 (2013) 21-29

P40. D. Venieri, E. Chatzisymeon, S. Sofianos, E. Politi, N. Xekoukoulotakis, A. Katsaounis, D. Mantzavinos, ‘’Removal of faecal indicator pathogens from waters and wastewaters by photoelectrocatalytic oxidation on TiO_2/Ti-films under simulated solar radiation‘’ Environmental Science & Pollution Research 19 (2012) 3782–3790

P39. V. Amstutz, A. Katsaounis, A. Kapałka, Ch. Comninellis and K.-M. Udert, ‘’Effects of carbonate on the electrolytic removal of ammonia and urea from urine with thermally prepared IrO2 electrodes’’ Journal of Applied Electrochemistry, 42 (2012) 787-795

P38. D. Theleritis, S. Souentie, A. Katsaounis and C.G. Vayenas, ‘’Hydrogenation of CO_2 over Ru/YSZ electropromoted catalysts’’ ACS Catalysis, 2 (2012) 770

P37. C. Jiménez-Borja, A. Consuegra, F. Sapountzi, F. Dorado, A. Katsaounis, J.L. Valverde, ‘’Oscillatory behaviour of Rh/YSZ under electropromoted conditions‘’ Chemical Physics Letters, 519-520 (2012) 89-92

P36. E. Tsantaki, T. Velegraki, A. Katsaounis, D. Mantzavinos, "Anodic oxidation of textile dyehouse effluents on boron-doped diamond electrode" Journal of Hazardous Materials, 207-208 (2012) 9196

P35. Z. Frontistis, C. Brebou, D. Venieri, D. Mantzavinos, A. Katsaounis, ‘’BDD anodic oxidation as tertiary wastewater treatment for the removal of emerging micro-pollutants, pathogens and organic matter’’ Journal of Chemical Technology and Biotechnology 86 (2011) 1233-1236

P34. E. Turro, A. Giannis, R. Cossu, E. Gidarakos, A. Katsaounis, ''Electrochemical oxidation of stabilised landfill leachate on DSA electrodes'' Journal of Hazardous Materials, 190 (2011) 460

P33. V. Daskalaki, E. Timotheatou, A. Katsaounis, D. Kalderis, ''Degradation of Reactive Red 120 using hydrogen peroxide in subcritical water'' Desalination, 274 (2011) 200

P32. Z. Frontistis, V.M. Daskalaki, A. Katsaounis, I. Poulios and D. Mantzavinos, ''Electrochemical enhancement of solar photocatalysis: Degradation of endocrine disruptor bisphenol-A on Ti/TiO_2 films'', Water Research 45 (2011) 2996

P31. V. Daskalaki, Z. Frontistis, D. Mantzavinos and A. Katsaounis, ''Solar light-induced degradation of bisphenol-A with TiO_2 immobilized on Ti''Catalysis Today, 161 (2011) 110

P30. A. Kapałka, S. Fiero, Z. Frontistis, A. Katsaounis, S. Neodo, K.M. Udert and Ch. Comninellis ''Electrochemical oxidation of ammonia (NH_4^+/NH_3) on thermally and electrochemically prepared IrO_2 electrodes'' Electrochimica Acta, 56 (2011) 1361

P29. A. Kapałka, A. Katsaounis, N.L. Michels, A. Leonidova, S. Souentie, Ch. Comninellis, Kai M. Udert, ''Ammonia oxidation to nitrogen mediated by electrogenerated active chlorine on Ti/PtO_x-IrO_2'' Electrochemistry Communications 12 (2010) 1203

P28. A. Nakos, S. Souentie and A. Katsaounis, ''Electrochemical promotion of methane oxidation on Rh/YSZ'' Applied Catalysis B: Environmental, 101 (2010) 31

P27. E. Chatzisymeon, S. Fierro, I. Karafyllis, D. Mantzavinos, N. Kalogerakis, A. Katsaounis, ''Anodic oxidation of phenol on Ti/IrO_2 electrode: Experimental studies'' Catalysis Today 151 (2010) 185

P26. T. Panakoulias, P. Kalatzis, D. Kalderis and A. Katsaounis, ''Electrochemical degradation of Reactive Red 120 using DSA and BDD anodes'' Journal of Applied Electrochemistry 40 (2010) 1759

P25. T. Velegraki, N. Xekoukoulotakis, A. Katsaounis, E. Diamantopoulos and D. Mantzavinos, ''Electrochemical oxidation of benzoic acid in water over BDD electrodes: Statistical analysis of key operating parameters, kinetic modelling, reaction by-products and ecotoxicity'' Chemical Engineering Journal 160 (2010) 538

P24. Alexandros Katsaounis, ''Recent developments and trends in Electrochemical Promotion of Catalysis'' Journal of Applied Electrochemistry, 40 (2010) 885

P23. E.H. Calderon, J. Hahladakis, G. Foti and A. Katsaounis, ''Effectiveness factor of isopropanol oxidation on IrO_2 based electrodes of different loading'' Electrochimica Acta, 55 (2010) 8215

P22. N. Papastefanakis, D. Mantzavinos and A. Katsaounis, ‘’DSA electrochemical treatment of olive mill wastewater on Ti/RuO2 anode‘’ Journal of Applied Electrochemistry 40 (2010) 729

P21. E.H. Calderon, A. Katsaounis, R. Wüthrich, P. Mandin, G. Foti, Ch. Comninellis, "Effectiveness factor of fast (Fe^{3+}/Fe^{2+}), moderate (Cl_2/Cl^-) and slow (O_2/H_2O) redox couples using IrO_2 based electrodes of different loading" Journal of Applied Electrochemistry, 39 (2009) 1827

P20. Chatzisymeon, E., Xekoukoulotakis, N.P., Diamadopoulos, E., Katsaounis, A. and Mantzavinos, D. "Boron-doped diamond anodic treatment of olive mill wastewaters: Statistical analysis, kinetic modeling and biodegradability" Water Research, 43 (2009) 3999

P19. A. Kapałka, S. Fierro, Z. Frontistis, A. Katsaounis, O. Frey, M. Koudelka, Ch. Comninellis and K.M. Udert, "Electrochemical behaviour of ammonia (NH_4^+/NH_3) on electrochemically grown anodic iridium oxide film (AIROF) electrode" *Electrochemistry Communications* 11 (2009) 1590

P18. E. Chatzisymeon, A. Dimou, D. Mantzavinos and A. Katsaounis, "Electrochemical Oxidation of model compounds and Olive Mill Wastewater over DSA electrodes: 1. The case of Ti/IrO_2"Journal of Hazardous Materials, 167 (2009) 268

P17. *A. Katsaounis,* "Temperature programmed desorption of oxygen from Pd films interfaced with Y_2O_3doped ZrO_2" Journal of Applied Electrochemistry, 38 (2008) 1097

P16. *A. Katsaounis,* "Electrochemical promotion of catalysis (EPOC): Perspectives for application to gas emissions treatment" Global Nest Journal, 10 (2008) 225

P15. C.G. Vayenas, M. Tsampas and *A. Katsaounis,* "First principles analytical prediction of the conductivity of Nafion membranes" Electrochimica Acta, 52 (2007) 2244-2256

P14. S. Balomenou, D. Tsiplakides, *A. Katsaounis*, S. Brosda, G. Foti, Ch. Comninellis, S. ThiemannHandler, B. Cramer, and C.G. Vayenas, "Monolithic Electrochemically Promoted Reactors: A step for the practical utilization of Electrochemical Promotion" Solid State Ionics, 177 (2006) 2201

P13. *A. Katsaounis*, M. Tsampas, S.P. Balomenou, D. Tsiplakides and C.G. Vayenas, "Potentialdependent electrolyte resistance and steady-state multiplicities of PEM fuel cells" Solid State Ionics, 177 (2006) 2397

P12. C.G. Vayenas and *A. Katsaounis,* "Proton and electron wave-particles in chemical and physical environments" Applied Catalysis B: Environmental, 64 (2006) 111

P11. C. Koutsodontis, *A. Katsaounis*, J.C. Figueroa, C. Cavalca and C.G. Vayenas. "The effect of catalyst film thickness on the magnitude of the Electrochemical Promotion for the case of ethylene oxidation on Pt/YSZ" Topics in Catalysis, 39 (2006) 97-100

P10. C. Koutsodontis, *A. Katsaounis*, J.C. Figueroa, C. Cavalca and C.G. Vayenas, "The effect of catalyst film thickness on the magnitude of the Electrochemical Promotion of catalytic reactions" Topics in Catalysis, 38 (2006) 157

P9. M. Tsampas, A. Picos, S. Brosda, *A. Katsaounis* and C.G. Vayenas, "The effect of membrane thickness on the conductivity of Nafion" Electrochimica Acta, 51 (2006) 2743-2755

P8. *A. Katsaounis*, S.P. Balomenou, D. Tsiplakides and C.G. Vayenas, "The role of potential-dependent electrolyte resistance in the performance and steady-state multiplicities of PEM fuel cells: Experimental investigation and macroscopic modeling" Electrochimica Acta, 50 (2005) 5132

P7. D. Tsiplakides, S. Balomenou, *A. Katsaounis*, C. Koutsodontis and C.G. Vayenas, "Electrochemical promotion of Catalysis: Mechanistic investigations and monolithic electropromoted reactors" Catalysis Today, 100 (2005) 133

P6. *A. Katsaounis*, S. Balomenou, D. Tsiplakides, S. Brosda, S.G. Neophytides and C.G. Vayenas, "Proton tunneling-induced bistability, oscillations and enhanced performance of PEM fuel cells" Applied Catalysis B: Environmental, 56 (2004) 237

P5. *A. Katsaounis*, Z. Nikopoulou, X.E. Verykios and C.G. Vayenas, "Comparative isotope-aided investigation of Electrochemical Promotion and Metal-Support Interactions: 2. CO oxidation by $^{18}O_2$ on electropromoted Pt films deposited on YSZ and on nanodispersed Pt/YSZ catalysts" Journal of Catalysis, 226 (2004) 197

P4. S. Balomenou, D. Tsiplakides, *A. Katsaounis*, S. Thiemann-Handler, B. Cramer, G. Foti, Ch. Comninellis and C.G. Vayenas, "Novel monolithic electrochemically promoted catalytic reactor for environmentally important reactions" Applied Catalysis B: Environmental, 52 (2004) 181

P3. *A. Katsaounis*, Z. Nikopoulou, X.E. Verykios and C.G. Vayenas, "Comparative isotope-aided investigation of Electrochemical Promotion and Metal-Support Interactions: 1. $^{18}O_2$ TPD of electropromoted Pt films deposited on YSZ and of dispersed Pt/YSZ catalysts" Journal of Catalysis, 222 (2004) 192

P2. F. Tietz, Ch. Papadelis, D. Tsiplakides, *A. Katsaounis* and C.G. Vayenas, "Temperature Programmed Oxygen Desorption of the Perovskites Series $Ln_{0.65}Sr_{0.3}Mn_{0.8}Co_{0.2}O_3$ (Ln: La-Gd)" Ionics, 7 (2001) 101

P1. C.G. Yiokari, G.E. Pitselis, D.G. Polydoros, *A.D. Katsaounis* and C.G. Vayenas, "High-Pressure Electrochemical Promotion of Ammonia Synthesis over an Industrial Iron Catalyst" The Journal of Physical Chemistry A, 104 (1999) 10600-10602

Scientific Research Projects as Scientific Director

2013-2015	ARISTEIA-II (General Secretary of Research & Technology) " Electrochemical Promotion of aerobic-catalytic treatment of toxic pollutants in aqueous phase" (budget: € 300.000)
2014-2016	Greek Research Program – Karatheodory (from University of Patras) "Preparation and study of anodes for low temperature alcohol fuel cells (DAFCs)" (budget: € 33.000)
2007-2008	Greek Research Program (from Technical University of Crete) "Catalytic treatment of soot from diesel engines" (budget: € 5.000)
2008-2010	Greek Research Program (from Technical University of Crete) "Development and study of low temperature direct alcohol fuel cells" (budget: € 12.000)
2009-2010	Research Program with Industry (FINOBETON Cement Industry) "Measurement and distribution of gas emissions" (budget: € 10.000)

2020-2024 European Union's EU Framework Programme for Research and Innovation Horizon 2020, Grant Agreement (No 861369)
"InnovEOX - Training a new generation of researchers in Innovative Electrochemical Oxidation processes"
(budget: € 250.000)

Scientific Research Projects as member of the Scientific Team

2018-2021 EPAnEK 2014-2020 European Union, Europen Regional Development Fund, Program Research-Create-Innovate, T1EΔK-01631: Scale up of Electrochemically Promoted Catalytic Hydrogenation of CO_2 for fuel production (CO2 TO FUELS)

2014-2018 ESA RPEMFC**:** 4000109578/13/NL/SC Development of a Closed Loop Regenerative HT PEM Fuel Cell System

2012-2015 SYNERGASIA 2011, ΕΥΔΕ-ΕΤΑΚ (09ΣΥΝ-42-729): Development of nanostructured electrodes for water electrolysis in high temperature polymeric membrane devices (HTPEM-ELE)

2012-2015 SYNERGASIA 2011, ΕΥΔΕ-ΕΤΑΚ (09ΣΥΝ-32-615): Electrochemical promotion of catalytic hydrogenation of CO_2 ($ECHOCO_2$)

2011-2013 ARISTEIA-I (General Secretary of Research & Technology), Electrochemical promotion if catalysis for the case of CO_2 hydrogenation to fuels and chemicals (Electrofuels)

2004-2006 FP6-2003-NEST-A: Electrocatalytic Gas-Phase Conversion of CO_2 in Confined Catalysts

2004-2006 Greek Programme 04 AKMON 61 supported from the Greek General Secretary of Research and Technology

2000-2003 Growth Project GRD1-1999-10239 Oxidation catalyst deactivation

1999-2002 European Project GRD1-1999-10239 – Study of the mechanism of Catalyst Deactivation for ethylene oxide and vinyl acetate reactions

1997-1999 Electric Power Research Institute (EPRI) contact WO8065-25 – Electrochemical Promotion of Ammonia Synthesis from N_2 and H_2