

Susanne Brosda

Curriculum Vitae

Teaching Assistant and Senior Researcher

Born Januray 18, 1965 in Merseburg, Germany

Current address

Department of Chemical Engineering, University of Patras, Caratheodory St 1, 26500 Patras, Greece, Phone: ++0030-2610-99 75 76. 96 27 56, Fax: ++30-2610-99 72 69,
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Education

Diploma in Chemistry, University of Greifswald, Germany, 1988
PhD, University of Greifswald, Germany, 1993

Experience

- 1988-1997 Teaching Assistant in physical, solid state chemistry, electrochemistry and analytical chemistry at the University of Greifswald, Germany
- 1997-1998 Engineer for research and development at HERAEUS Sensor Nite N.V, Houthalen, Belgium, Application of hydrocarbon sensors in the automobile exhaust gas (on-board diagnosis)
- 1998 -2005 Co-worker at the University of Patras in Training and Mobility Projects: Electrocatalytic studies on mixed conducting anodes with and without NiO for SOFC application, Catalytic and electrocatalytic studies on proton conductor
- since 2005 Teaching Assistant in the Department of Chemical Engineering, University of Patras, Research activities: Classification and Modeling of Electrochemical Promotion of Catalysis (EPOC), Rules of EPOC, EPOC with oxygen-ion conductors for NO reduction, deep light hydrocarbon oxidation, CO₂ hydrogenation and H₂S desulphurization

Research interests

solid state electrochemistry, electrocatalysis, heterogeneous catalysis, electrochemical promotion, fuel cells, ceramic materials, solid state sensor devices

Key achievements

Refereed Publications in Journals	39
Refereed Publications in International Proceedings	9
Books authored	1
Invited Chapters in Books	4
International Patents	6
Citations	≈ 470

Served as a referee for the following Journals

Applied Catalysis B	Journal of Solid State Electrochemistry
Journal of Applied Electrochemistry	Catalysis Today
Topics in Catalysis	International Journal of Hydrogen Energy
Journal of Advanced Oxidation Technologies	Materials Chemistry and Physics

PUBLICATIONS

A. IN REFEREED JOURNALS

- A1.** U. GUTH, P. SCHMIDT, R. JAHN, S. BROSDA AND H.-H. MOEBIUS
"Impedance studies on galvanic cells using oxoanionic solid electrolytes"
Solid State Ionics **36** 127-128 (1989).
- A2.** U. GUTH, S. BROSDA, B. LOESCHER, A. SIMMICH, P. SCHMIDT AND H.-H. MOEBIUS
"Composite based on oxoanionic solid electrolytes"
Materials Science Forum (Zürich) **76** 137-140 (1991).
- A3.** S. BROSDA, H. WULFF, U. KRIEN AND U. GUTH
"Determination of amorphous layers on thick film Nasicon in dependence on different sintering processes"
Ionics **1** 242-245 (1995).
- A4.** U. GUTH, S. BROSDA AND J. SCHOMBURG
"Applications of clay minerals in sensor techniques"
Appl. Clay Sci. **11** 229-236 (1996).
- A5.** S. BROSDA, A. SIMMICH, H.J.M. BOUWMEESTER, P.J. GELLINGS AND U. GUTH
"Composite effect of solid electrolytes based on alkali carbonates and sulphates"
Ionics **3&4** 323-328 (1996).
- A6.** S. BROSDA, H.J.M. BOUWMEESTER AND U. GUTH
"Electrical conductivity and thermal behavior of solid electrolytes based on alkali carbonates and sulphates"
Solid State Ionics **101-103** 1201-1205 (1997).
- A7.** H. RUNGE, S. BROSDA, P. SHUK AND U. GUTH
"Oxidische Festelektrolyte mit Fluorit und Perowskitstruktur" (Solid electrolytes based on fluorite and perovskite structures)
F.J. Kruger, J. Russow, J.; G. Sandstedt (eds.): GdCH-Monographie Bd. **12** 232-240 (1998).
- A8.** P.D. PETROLEKAS, S. BROSDA AND C.G. VAYENAS
"Electrochemical promotion of Pt catalyst electrodes deposited on Na₃Zr₂Si₂PO₁₂ during ethylene oxidation"
J. Electrochem. Soc. **145/5** 1469-1477 (1998).
- A9.** S. BEBELIS, M. MAKRI, A. BUEKENHOUDT, J. LUYTEN, S. BROSDA, P. PETROLEKAS, C. PLIANGOS AND C. G. VAYENAS
"Electrochemical activation of catalytic reactions using anionic, cationic and mixed conductors"
Solid State Ionics **129** 33-46 (2000).
- A10.** C.G. VAYENAS, S. BROSDA AND C. PLIANGOS,
"Rules and mathematical modeling of electrochemical and chemical promotion: 1. Reaction classification and promotional rules"
J. Catal. **203** 329-350 (2001).
- A11.** C.G. VAYENAS AND S. BROSDA
"Spillover-modified catalysis: Experiment and mathematical modelling"
Studies in Surface Science and Catalysis **138** 197-204 (2001).
- A12.** C.G. VAYENAS, C. PLIANGOS, S. BROSDA AND D. TSIPLAKIDES
"Rules and modeling of promotion, electrochemical promotion and metal-support interactions"
Chem. Ind. **55** (12) 551-574 (2001).
- A13.** C.G. VAYENAS AND S. BROSDA
"Electrochemical promotion: Experiment, rules and mathematical modelling"
Solid State Ionics **154-155** 243-250 (2002).
- A14.** S. BROSDA AND C.G. VAYENAS
"Mathematical modeling of electrochemical and classical promotion: 2. Modeling"
J. Catal. **208** 38-50 (2002).
- A15.** C.G. VAYENAS, S. BROSDA AND C. PLIANGOS
"The double layer approach to promotion, electrocatalysis, electrochemical promotion and metal-support interactions"
J. Catal. **216** 487-504 (2002).

- A16.** A. THURSFIELD, S. BROSDA, C., PLIANGOS, T. SCHÖBER AND C.G. VAYENAS
 "Electrochemical promotion of an oxidation reaction using a proton conductor"
Electrochimica Acta **48** 3779-3788 (2003).
- A17.** E.A. BARANOVA, A. THURSFIELD, S. BROSDA, G. FÓTI, CH. COMNINELLIS AND C.G. VAYENAS
 "Electrochemical promotion of ethylene oxidation over sputter-coated Rh catalysts on YSZ and TiO₂/YSZ supports"
J. Electrochem. Soc. **152** (2) E40 (2004).
- A18.** A. KATSAOUNIS, S. BALOMENOU, D. TSIPLAKIDES, S. BROSDA, S. NEOPHYTIDES AND C.G. VAYENAS
 "Proton tunneling-induced bistability, oscillations and enhanced performance of PEM fuel cells"
Appl. Catal. B: Environmental **56**(3) 251-258 (2005).
- A19.** M.N. TSAMPAS, A. PIKOS, S. BROSDA, A. KATSAOUNIS AND C.G. VAYENAS
 "The effect of membrane thickness on the conductivity of Nafion"
Electrochimica Acta **51**/13 2743-2755 (2006).
- A20.** E.A. BARANOVA, A. THURSFIELD, S. BROSDA, G. FÓTI, CH. COMNINELLIS AND C.G. VAYENAS
 "Electrochemically induced oscillations of C₂H₄ oxidation over thin sputtered Rh catalyst films"
Catalysis Letters **105** 15-21 (2005).
- A21.** S.P. BALOMENOU, D. TSIPLAKIDES, A. KATSAOUNIS, S. BROSDA, A. HAMMAD, G. FÓTI, CH. COMNINELLIS, S. THIEMANN-HANDLER, B. CRAMER AND C.G. VAYENAS
 "Monolithic electrochemically promoted reactors: A step for the practical utilization of electrochemical promotion:
Solid State Ionics **177** 2201-2204 (2006).
- A22.** S. BROSDA, C.G. VAYENAS AND J. WEI
 "Rules of Chemical Promotion"
Appl. Catal. B: Environmental **68** 109-124 (2006).
- A23.** CONSTANTINOPOULOU, D. ARCHONTA, S. BROSDA, M. LEPAGE, Y. SAKAMOTO AND C.G. VAYENAS
 "Electrochemical promotion of NO reduction by C₃H₆ on Rh paste catalyst-electrodes and on dispersed Rh/YSZ catalysts"
J. Catal. **251** 400-409 (2007).
- A24.** S. BROSDA AND C.G. VAYENAS
 "NO reduction performance of Rh paste catalyst on YSZ under steady state and forced oscillation electropromotion conditions"
J. Appl. Electrochem. **38** 1135-1142 (2008).
- A25.** S. SOUENTIE, A. HAMMAD, S. BROSDA, G. FÓTI AND C.G. VAYENAS
 "Electrochemical Promotion of NO reduction by C₂H₄ in 10% O₂ using a monolithic electropromoted reactor with Rh/YSZ/Pt elements"
J. Appl. Electrochem. **38** 1159-1170(2008).
- A26.** Y. SAKAMOTO, K. OKUMURA, H. SHINJOH, M. LEPAGE AND S. BROSDA
 "Temperature dependence of electrochemically promoted NO reduction by C₃H₆ under stoichiometric conditions using Me/YSZ/Au (Me=Rh, RhPt, Pt) electrochemical catalyst"
Catalysis Today **146** 3-4 299-307 (2009).
- A27.** E.I. PAPAIOANNOU, S. SOUENTIE, F.M. SAPOUNTZI, A. HAMMAD, D. LABOU, S. BROSDA AND C.G. VAYENAS
 "The role of TiO₂ layers deposited on YSZ on the electrochemical promotion of C₂H₄ oxidation on Pt"
J. Appl. Electrochem. **40** 1859-1865 (2010).
- A28.** E. MUTOLO, C. KOUTSODONTIS, B. LUERBEN, S. BROSDA, C. G. VAYENAS AND J. JANEK
 "Electrochemical promotion of Pt(111)/YSZ(111) and Pt-FeO_x/YSZ(111) thin catalyst films: Electrocatalytic, catalytic and morphological studies"
Appl Catal. B: Environmental **100** 328-337 (2010).
- A29.** S. BROSDA, T. BADAS, AND C.G. VAYENAS
 Study of the mechanism of the electrochemical promotion of Rh/YSZ catalysts for C₂H₄ oxidation via AC impedance spectroscopy"
Topics in Catalysis **54** 708-717 (2011).
- A30.** M.N. TSAMPAS, S. BROSDA AND C.G. VAYENAS
 "Electrochemical impedance spectroscopy of fully hydrated Nafion membranes at high and low hydrogen

partial pressures”

Electrochim Acta **56** 10582-10592 (2011).

- A31.** V. JIMÉNEZ, C. JIMÉNEZ-BORJA, P. SÁNCHEZ, A. ROMERO, E. I. PAPAIOANNOU, D. THELERITIS, S. SOUENTIE, S. BROSDA AND J. LUIS VALVERDE
“Electrochemical promotion of the CO₂ hydrogenation reaction on composite Ni or Ru impregnated carbon nanofiber catalyst-electrodes deposited on YSZ”
Appl. Catal. B: Environmental **107** 210-220 (2011).
- A32.** C. JIMÉNEZ-BORJA, S. BROSDA, M. MAKRI, F.M. SAPOUNTZI, F. DORADO, J.L. VALVERDE AND C.G. VAYENAS
“Methane oxidation on Pd/YSZ by electrochemical promotion”
Solid State Ionics **225** 376-380 (2012).
- A33.** C. JIMÉNEZ-BORJA, S. BROSDA, F. MATEI, M. MAKRI, B. DELGADO, F. SAPOUNTZI, D. CIUPARU, F. DORADO, J. L. VALVERDE AND C. G. VAYENAS
“Electrochemical Promotion of Methane Oxidation on Pd Catalyst-Electrodes Deposited on YSZ”
Appl. Catal. B: Environmental **128** 48-54 (2012).
- A34.** F.M. SAPOUNTZI, S. BROSDA, K.M. PAPASIZI, S. BALOMENOU, D. TSIPLAKIDES
“Electrochemical performance of La_{0.75}Sr_{0.25}Cr_{0.9}M_{0.1}O₃ perovskites as SOFC anodes in CO/CO₂ mixtures”
J. Appl. Electrochem. **42/9** 727-735 (2012).
- A35.** F. MATEI, D. CIUPARU, C. JIMÉNEZ-BORJA, F. DORADO, J. L. VALVERDE, S. BROSDA
“Electrochemical Promotion of Methane Oxidation on Impregnated and Sputtered Pd Catalyst-Electrodes Deposited on YSZ”
Appl. Catal. B: Environmental **127** 18-27 (2012).
- A36.** F. MATEI, C. JIMÉNEZ-BORJA, J. CANALES-VÁZQUEZ, S. BROSDA, F. DORADO, J.L. VALVERDE AND D. CIUPARU
“Enhanced electropromotion of methane combustion on Pd catalysts deposited on highly porous supports”
Appl. Catal. B: Environmental **132** 80-89 (2012).
- A37.** S. PENG-ONT, P. PRASERTHDAM, F. MATEI, D. CIUPARU, S. BROSDA AND C. G. VAYENAS
“Electrochemical Promotion of Propane and Methane Oxidation on Sputtered Pd Catalyst-Electrodes Deposited on YSZ”
Catal. Lett. **142** 1336-1343 (2012).
- A38.** S. PENG-ONT, S. SOUENTIE, S. ASSABUMRUNGGRAT, P. PRASERTHDAM, S. BROSDA AND C. G. VAYENAS
“Reaction Kinetic-Induced Changes in the Electrochemically Promoted C₂H₄ Oxidation on Pt/YSZ”
Catal. Lett. **143** 445-453 (2013).
- A39.** S. PENG-ONT, S. SOUENTIE, S. ASSABUMRUNGGRAT, P. PRASERTHDAM, S. BROSDA AND C. G. VAYENAS
“Electrochemical Promotion of Propane Oxidation over Pd, Ir, and Ru Catalyst-Electrodes Deposited on YSZ”
Ionics **19** 1705–1714 (2013).
- A40.** C. G. VAYENAS AND S. BROSDA
“Electron donation – backdonation and the rules of catalytic promotion”
Topics in Catalysis **57** 1287-1301 (2014).

B. BOOKS AUTHORED

- B1.** “Electrochemical Activation of Heterogeneous Catalysis: Promotion, Electrochemical Promotion and Metal-Support Interactions”
C.G. Vayenas, S. Bebelis, C. Pliangos, S. Brosda and D. Tsiplakides, Kluwer/Plenum Press, New York (2001)

C. INVITED CHAPTERS IN BOOKS

- C1.** “Promotion, electrochemical promotion and metal-support interactions: The underlying role of spillover” in
“Catalysis and Electrocatalysis at Nanoparticle Surfaces”
C.G. VAYENAS, C. PLIANGOS, S. BROSDA AND D. TSIPLAKIDES
A. Wieckowski, E. Savinova and C.G. Vayenas eds., Marcel Dekker, New York (2003)
- C2.** “Electrocatalysis”
A. KATSAOUNIS, S. BROSDA AND C.G. VAYENAS
Chapter 2, “Electrochemical Engineering” (ed. D.D. Macdonald & P. Schmuki), **Vol. 5** in *Encyclopedia of*

Electrochemistry (eds. A.J. Bard and M. Stratmann), Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, pp. 23-80 (2007).

- C3.** "Electrochemical Modification of Catalytic Activity"
C.G. VAYENAS, A. KATSAOUNIS, S. BROSDA AND A. HAMMAD
Ch. 8.1.2 in *Handbook of Heterogeneous Catalysis, 2nd Edition*, (G. Ertl, H. Knözinger, F. Schüth and J. Weitkamp, eds), Wiley-VCH (2007).
- C4.** "NEMCA effect: Non-Faradaic Electrochemical Modification of Catalytic activity"
C.G VAYENAS AND S. BROSDA
Encyclopedia of Electrochemical Power Sources (2008)

D. PUBLICATIONS IN REFEREED INTERNATIONAL PROCEEDINGS

- D1.** H.-D. WIEMHOEFER, H. KELLER, S. BROSDA, U. GUTH AND W. GOEPEL
"CO₂-Monitoring with solid state devices based upon Na₂CO₃/BaCO₃"
Proc. SPIE-Int. Soc Opt. Engg **1716** 482 (1993).
- D2.** S. BROSDA, T. WIDMER, A. ORLIUKAS, B. ROTH, U. SCHOENNAUER AND U. GUTH
"Investigation of porosity of thick-film YSZ by means of impedance spectroscopy"
Proc. of Int. Conf. on Electronic Ceramics and Application, Aveiro, Portugal, Sept. 2-4, 1996, Vol **2** 127-131.
- D3.** S. BROSDA, H. RUNGE AND U. GUTH
"Oxygen conducting perovskite related materials for low temperature application"
Proc. 5th Int. Symp. on SOFC, Ed. by U. Stimming, S.C. Singhal, H. Tagawa, W. Lehnert, Vol. **97**, pp. 1183-1187, The Electrochemical Society inc., Pennington (1996), NJ USA.
- D4.** V. BRÜSER, S. BROSDA, H. ERDMANN, W. KLINGNER, AND U. GUTH
"Tip-type solid state CO₂-sensors: Influence of surface properties on the sensor response"
Proceedings of the EUROSENSORS XI, Warsaw, Poland, September 21-24 1997.
- D5.** H. RUNGE, S. BROSDA AND U. GUTH
"Investigation of the conductivity in mixed oxides based on Ga₂O₃"
In: T.A. Ramanarayanan, Editor, *Ionic and Mixed Conducting Ceramics III*, PV 97-24, The Electrochemical Society, Pennington (1998), pp. 363-369.
- D6.** M. MAKRI, A. BUEKENHOUDT, J. LUYTEN, S. BROSDA, P. PETROLEKAS, C. PLIANGOS, S. BEBELIS AND C. G. VAYENAS
"Role of the solid electrolyte support on the NEMCA behaviour of ethylene oxidation on Pt"
in: A.A. Wragg (Ed.), Proceedings of the 5th European Symposium on Electrochemical Engineering (Exeter, U.K.), Icheme Symp. Ser. 145 (1999) 269-280.
- D7.** S. BROSDA AND C.G. VAYENAS
"NO reduction performance of Rh paste catalyst on YSZ at steady state and forced oscillation conditions"
Proc. OREPOC Conference, 1-5.October 2007, Thessaloniki, Greece, p.129-133
- D8.** Y. SAKAMOTO, K. OKUMARA, H. SHINJON, M. LEPAGE AND S. BROSDA
"The electrochemically promoted NO reduction and C₃H₆ oxidation under stoichiometric conditions: effect of the YSZ sintering duration"
Proc. EPOCAP Conference, 30.09-4.10.2008, Oleron, France
- D9.** S. BROSDA, TH. BADAS AND C.G. VAYENAS
"Electrochemical investigations of the gas exposed Rh/YSZ interface under reaction conditions"
Proc. EPOCAP Conference, 30.09-4.10.2008, Oleron, France

O. Oral Presentations

- O1.** "Determination of amorphous layers on thick film Nasicon in dependence on different sintering processes"
S. BROSDA, H. WULFF, U. KRIEN AND U. GUTH
September 1994, Zakynthos, Greece.
- O2.** "Applications of clay minerals in sensor techniques"
U. GUTH, S. BROSDA AND J. SCHOMBURG
Symposium ueber Tonminerale und ihre Anwendung, 1996, Neubrandenburg, Germany.

- 03.** "Composite effect of solid electrolytes based on alkali carbonates and sulphates"
S. BROSDA, A. SIMMICH, H.J.M. BOUWMEESTER, P.J. GELLINGS AND U. GUTH
1995 Madeira, Portugal.
- 04.** "Investigation of porosity of thick-film YSZ by means of Impedance spectroscopy"
S. BROSDA, T. WIDMER, A. ORLIUKAS, B. ROTH, U. SCHÖNAUER AND U. GUTH
Electrocera 1995, Aveiro, Portugal.
- 05.** "Μερικοί κανόνες της ηλεκτροχημικής και κλασικής ενισχυσης"
S. BROSDA, C. PLIANGOS AND C.G. VAYENAS
6 Πανελλήνιο Συμπόσιο Κατάλυσης 3 και 4 Νοεμβρίου 2000, Δέλφοι.
- 06.** "NO reduction performance of Rh paste catalyst on YSZ at steady state and forced oscillation conditions"
S. BROSDA, AND C.G. VAYENAS, OREPOC Conference, 1-5.October 2007, Thessaloniki, Greece.
- 07.** "Electrochemical promotion of the NO reduction on Rh/YSZ catalyst electrodes under steady state and forced oscillation conditions"
S. BROSDA, AND C.G. VAYENAS
18th International Congress of Chemical and Process Engineering (CHIZA) and 25th European Symposium on Electrochemical Engineering, August 24-28, 2008 - Prague, Czech Republic.
- 08.** "Electrochemical investigations of the gas exposed Rh/YSZ interface under reaction condition"
S. BROSDA, TH. BADAS AND C.G. VAYENAS, EPOCAP Conference, 30.09-4.10.2008, Oleron, France.
- 09.** "Pt, Rh and Pd catalyst-electrodes deposited on YSZ solid electrolytes: Similarities and differences in the electrochemically promoted deep oxidation of ethylene and methane"
S. BROSDA, 01.03.2011, Dpto. Ingeniería Química-Facultad de Químicas, Ciudad Real, Spain (invited seminar).
- 010.** "Study of the mechanism of the electrochemical promotion of Rh/YSZ catalysts for C₂H₄ oxidation via AC impedance spectroscopy"
S. BROSDA, T. BADAS AND C.G. VAYENAS
9th European Symposium on Electrochemical Engineering (9th ESEE) Chania, Crete, Greece, 19-23 June 2011.
- 011.** "Study of the mechanism of the electrochemical promotion of Rh/YSZ catalysts for C₂H₄ oxidation via AC impedance spectroscopy"
S. BROSDA, T. BADAS, AND C.G. VAYENAS, SSI 18th - International Conference on Solid State Ionics, July 3-8 2011, Warszawa, Poland.
- 012.** "Reactions Kinetics of the electrochemically promoted C₂H₄ oxidation on Pt/YSZ catalysts"
S. BROSDA, S. SOUENTIE, S. PENG-ONT, P. PRASERTHDAM AND C.G. VAYENAS
63rd Annual Meeting of the International Society of Electrochemistry, August 19-24, 2012, Prague, Czech Republic.
- 013.** "Rules and modeling of classical and electrochemical promotion"
S. BROSDA
RGJ –PhD congress XIV (The Royal Golden Jubilee PhD Programm), April 5-7, 2013, Pattaya, Chonburi, Thailand.

P. PATENTS

- P1.** U. GUTH, S. BROSDA, D. FINKE, L. SCHWARZ AND H.-H. MOEBIUS
Alkaliionenleitender Festelektrolyt für Gassensoren
(Alkali-ion conducting solid electrolyte for gas sensors)
DD 294 346 A5, 26.09.1991
- P2.** H.-H. MOEBIUS, F. BARWISCH, U. GUTH, S. JAKOBS, W. ZASTROW AND S. BROSDA
Einrichtung zur schnellen simultanen potentiometrischen Bestimmung der Konzentrationen von Kohlendioxid und Sauerstoff insbesondere im Atemgas
(Device for fast potentiometric determination of CO₂ and O₂ concentrations especially in breathing air)
DD 299 336 A5, 09.04.1992
- P3.** U. SCHOENNAUER, W. GOEPEL, G. REINHARDT, S. SOMOV, U. GUTH AND S. BROSDA
Vorrichtung und Verfahren zur Bestimmung von gasförmigen Bestandteilen in Gasgemischen
Device and process for determining gaseous components of gas mixtures
DE 44 42 272 A1, 30.05.1996 and
WO 96/17242, 06.06.1996 (PCT/EP95/04687)

- P4.** S. BROSDA, U. GUTH, S. LENARTS, G. REINHARDT AND U. SCHOENNAUER
Multifunktionaler HC Sensor
(Multifunctional sensor for hydrocarbons)
DE 197 40 500.2, 11.09.1998, (PCT/EP98/05823, 14.09.1998)
- P5.** P. VAN GELOVEN, G. CAPPA, S. LENARTS, P. VAN DE VOORDE, S. BROSDA, J. GRIFFIN AND E. HAEFELE
Multifunktionaler Gassensor
(Multifunctional gas sensor)
DE 197 57 112.3, 11.09.1998, (PCT/EP98/05792, 11.09.1998)
- P6.** C.G. VAYENAS, S. BALOMENOU, D. TSIPLAKIDES, A. KATSAOUNIS, S. BROSDA, G. FOTI, C. COMNINELLIS, S. THIEMAN-HANDLER
AND B. CRAMER
Method and Apparatus for Carrying Out Electrochemically Promoted Reactions", US Patent
(PCT/GR2004/000006), filed 28/01/2004.

	publication	year	Impact Factor	Web of Science			Scopus		
				S ⁽¹⁾	O ⁽²⁾	Σ ⁽³⁾	S ⁽¹⁾	O ⁽²⁾	Σ ⁽³⁾
A1	Solid State Ionics 36 127-128 (1989)	1989	2.646	2	1	3	2	1	3
A2	Materials Science Forum (Zürich) 76 137-140 (1991)	1991		0	7	7	-	-	-
A3	Ionics 1 242-245 (1995)	1995	1.288	0	3	3	0	2	2
A4	Applied Clay Science 11 229-236 (1996)	1996	2.474	0	21	21	0	23	23
A5	Ionics 3&4 323-328 (1996)	1996	1.288	0	0	0	0	0	0
A6	Solid State Ionics 101-103 1201-1205 (1997)	1997	2.646	0	7	7	0	7	7
A7	GdCH-Monographie Bd. 12 232-240 (1998)	1998	-	-	-	-	-	-	-
A8	J. Electrochem. Soc. 145 5 1469-1477 (1998)	1998	2.190	3	14	17	3	16	19
A9	Solid State Ionics 129 33-46 (2000)	2000	2.646	4	18	22	3	17	22
A10	J. Catal. 203 329-350 (2001)	2001	6.002	27	48	75	27	49	76
A11	Studies in Surface Science and Catalysis 138 197-204 (2001)	2001	0.307	1	2	3	1	2	3
A12	Chem. Ind. 55 (12) 551-574 (2001)	2001	-	-	-	-	-	-	-
A13	Solid State Ionics 154-155 243-250 (2002)	2002	2.646	0	10	10	0	13	13
A14	J. Catal. 208 38-50 (2002)	2002	6.002	12	16	28	12	14	26
A15	J. Catal. 216 487-504 (2002)	2002	6.002	12	37	49	12	37	49
A16	Electrochimica Acta 48 3779-3788 (2003)	2003	3.832	5	9	14	5	8	13
A17	J. Electrochem. Soc. 152 (2) E40 (2004)	2004	2.190	11	11	22	11	11	22
A18	Appl. Catal. B: Environmental 56 (3) 251-258 (2004)	2004	5.625	5	17	21	5	17	21
A19	Catal. Lett. 105 15-21 (2005)	2005	2.242	4	7	11	4	5	9
A20	Electrochimica Acta 51/13 2743-2755 (2006)	2006	3.832	5	32	37	5	35	40
A21	Solid State Ionics 177 2201-2204 (2006)	2006	2.646	4	11	15	7	10	19
A22	Appl. Catal. B: Environmental 68 109-124 (2006)	2006	5.625	3	36	39	3	37	40
A23	J. Catal. 251 400-409 (2007)	2007	6.002	6	12	18	3	17	20
A24	J. Appl. Electrochemistry 38 1135-1142 (2008)	2008	1.745	0	1	1	1	1	2
A25	J. Appl. Electrochemistry 38 1159-1170 (2008)	2008	1.745	3	9	12	0	12	12
A26	Catalysis Today 146 3-4 299-307 (2009)	2009	3.407	1	1	2	1	1	2
A27	J. Appl. Electrochemistry 40 (2010) 1859-1865	2010	1.745	0	4	4	2	4	6
A28	Appl. Catal. B: Environmental 100 328-337 (2010)	2010	5.625	2	8	10	2	9	11
A29	Topics in Catalysis 54 708-717 (2011)	2011	2.624	0	0	0	0	0	0
A30	Electrochim Acta 56 10582-10592 (2011)	2011	3.832	0	1	1	0	1	1
A31	Appl. Catal. B: Environmental 107 210-220 (2011)	2011	5.625	1	4	5	0	2	2
A32	Solid State Ionics 225 376-380 (2012)	2012	2.646	2	1	3	2	1	3
A33	Appl. Catal. B: Environmental 128 48-54 (2012)	2012	5.625	4	1	5	3	0	3
A34	J. Appl. Electrochem. 42/9 727-735 (2012)	2012	1.745	0	0	0	0	0	0
A35	Appl. Catal. B: Environmental 127 18-27 (2012)	2012	5.625	2	1	3	1	0	1
A36	Appl. Catal. B: Environmental 132 80-89 (2012)	2012	5.625	1	0	1	0	0	0
A37	Catal. Lett. 142 1336-1343 (2012)	2012	2.242	0	0	0	0	0	0
A38	Catal. Lett. 143 445-453 (2013)	2013	2.242	0	0	0	0	0	0
A39	Ionics (2013) DOI 10.1007/s11581-013-0931-0	2013	1.288	0	0	0	0	0	0
A40	Topics in Catalysis (2014) DOI 10.1007/s1144-014-029-4	2014	2.624	0	0	0	0	0	0
				126	342	468	127	352	479

S⁽¹⁾ self-citation
 O⁽²⁾ citations by others
 Σ⁽³⁾ sum