

## Curriculum Vitae

### IOANNIS V. YENTEKAKIS



### Professor of Physical Chemistry

(Heterogeneous Catalysis & Electrocatalysis; Surface Science; Nano-materials; Sustainable Energy; Fuel Cells)

**Member of the University Council, TUC**

**Director: Laboratory of Physical Chemistry & Chemical Processes**

**Vise-Dean: School of Chemical & Environmental Engineering, TUC**

**TECHNICAL UNIVERSITY OF CRETE (TUC)**

**School of Chemical & Environmental Engineering**

**73100 Chania, Crete, Greece**

**SUMMARY:**

**Professor Ioannis V. Yentekakis** has born in 1960 in Crete, Greece. He graduated in 1983 from the Department of Chemical Engineering, **University of Patras**, where in 1983-1987 he elaborated his Ph.D. under the supervision of Professor C.G. Vayenas. In 1987-1888 he was employed as postdoctoral fellow in the Department of Chemical Engineering at **Princeton University, NJ, USA**. In 1988 he returned to Greece, joined the ICE-HT/FORTH in Patras and the department of Chemical Engineering, University of Patras as a postdoctoral fellow and lecturer in both institutions. In 1995-2001 he served as Faculty Member (Lecturer and Assistant Professor) in the field of "Catalytic and Electrocatalytic Processes" in the department of Chemical Engineering, University of Patras. Then, in 2001 he was elected as Associate Professor in the Technical University of Crete (TUC) in the field of "Physical Chemistry" and in 2006 as Full Professor in the same field and University. In 2013 he moved to the School of Environmental Engineering of TUC, where he is working up to today. For many years (1989-today), he sustains very close collaboration (frequent visits as Visiting Professor) with the department of Chemistry, **Cambridge University, UK** (Prof. R.M. Lambert).

Prof. Yentekakis work is related with extended teaching (>110 under- and post-graduate semester courses of several titles), administrative responsibilities (e.g., Chairman, University Senate and University Council regular member) and research activities. His research activities lie mainly in the scientific areas of **Heterogeneous Catalysis and Electrocatalysis; Physical Chemistry of Surface and Interfaces; Chemical Kinetics, Materials Technology and Engineering; Reactors and Processes Engineering, Renewable Energy, etc.** In particular, his research interests and objectives are to discover, elucidate, understand and exploit surface, catalytic, electrocatalytic and promotional phenomena over complex composites and nano-structured materials. It involves determination of the electronic structure of adsorbed and reacting surface species as a function of reaction variables, especially in relation to reactivity/selectivity and molecular mechanisms, heterogeneous catalysis, environmental protection, etc. Aspects addressed in his projects, quite often have direct and immediate relevance to important technological applications. Current research includes investigation of surface-induced and support-mediated promotional effects and their synergy in heterogeneous catalysis/electrocatalysis; De-NO<sub>x</sub> and De-N<sub>2</sub>O processes; natural gas, biogas and higher hydrocarbons reforming processes, emissions control systems, fuel cells. Surface and catalytic phenomena are studied by advanced analytical, microscopic and spectroscopic methods such as high resolution electron microscopy (HREM), in situ Diffuse Reflectance Infrared Fourier Transform Spectroscopy (DRIFTS), X-ray photoelectron spectroscopy (XPS) X-ray diffraction (XRD), X-ray fluorescence (XRF), Physi-Chemi-sorption, Temperature-Programmed Desorption (TPD) and other techniques. In brief his research interests and activities can be entitled as:

- Heterogeneous catalysts synthesis, design and development: Synthesis of enhanced catalytic/electrocatalytic properties (nano-) composites; structure, morphology, physicochemical characterization and evaluation of their catalytic/electrocatalytic performance under selected reactions relevance to important technological applications.
- Behavior, physical and morphological properties of surfaces and interfaces.
- Promotion and its origin in heterogeneous catalysis and electrocatalysis.
- Fuel Cells science and technology.
- Hydrogen energy, biofuels, natural gas, hydrocarbons reforming,
- CO<sub>2</sub> capture and utilization, biogas upgrading and valorization
- Chemical and Processes Engineering.

His research work has been published in **125 papers in international peer-reviewed journals (mean IF/paper~7.159; Max IF = 47.728)**, which has been acknowledged with more than **5120 citations, h-index = 43** (Google scholar). Special articles in scientific journals have been written by others exclusively about this research. He has also published >**130 papers in international and national conference proceedings, 1 invited monograph** in international Journal, **5 chapters in international Handbooks** and **3 international patents**, while he has given >**30 invited talks** in conferences and institutions. He is **Specilaty Chief-Editor** of the journal of *Frontiers in Environmental Chemistry: Catalytic Remediation*, **Section Editor-in-Chief Editor of Nanomaterials** (MDPI) and Editorial Board Member in 8 additional interational journals: **Molecules** (MDPI), **Catalysts** (MDPI), **Reactions** (MDPI), **Coatings** (MDPI), **Catalysis Research** (LiDSEN), etc. He is also regular reviewer for 69 scientific Journals (>400 reviews) and for several research funding agencies (>300 proposals' reviews). He was member in the organizing and scientific committees and/or session chairman of numerous international and national scientific conferences. He has **supervised 4 Post-Doc, 8 Ph.D., >30 M.Sc., >70 diploma theses** and **developed 2 laboratories** (at University of Patras and Technical University of Crete). He was member of the team awarded in 1992 by the National Athens Academy of Science with the Medal and Prize of chemistry. He has participated as senior key-researcher, principal investigator or program coordinator in over **36 research grants (21 as coordinator)** awarded by The European Union, The British Council, The Greek Ministry of Education and The Greek Ministry of Development-GSRT, etc. He develops and expands a valuable network of collaborators both in Greece and abroad, including worldwide appreciated academic and research institutions or companies.

Professor Yentekakis is/was **Guest Editor in 6 specific topics (Special Issues)** in international journals, namely "Advanced Utilization and management of Biogas" (*Frontiers in Environmental Science*), "Emissions Control Catalysis" (*Catalysts*, MDPI journal), "Noble Metal Catalysts" (*Catalysts*, MDPI journal), "Advances in heterocatalysis by nanomaterials" (*Nanomaterials* MDPI), "Nanomaterials in Catalytic Applications" (*Catalysts* MDPI) and "Recent Advances in Environmental Nanoscience and nanotechnology". He has received "Certificate of Recognition" at the 6<sup>th</sup> International Conference on Environmental Chemistry and Engineering, Rome, Italy 2017, where he was invited to give a plenary lecture.

Professor Yentekakis had a key-inventor role in several new physicochemical phenomena, with high scientific and practical impact, as for example:

- (i) The discovery of Non-Faradaic Electrochemical modification of Catalytic Activity" (NEMCA) or "Electrochemical Promotion" in Heterogeneous Catalysis [C.G. Vayenas, S. Bebelis, I.V. Yentekakis and H-G. Lintz, *Catal. Today*, 111, 303-445 (1992)],
- (ii) The development of a direct catalytic process for the conversion of methane to ethylene with >85% yield [Y. Jiang, I.V. Yentekakis and C.G. Vayenas, *Science*, 264, 1563-1566 (1994); "Chemical Engineers near Holy Grail", *Chem. & Ind.*, 12 p.444 (1994)],
- (iii) The development of several novel fuel cells, such as: the direct H<sub>2</sub>S-fuel cell; the direct biogas fuel cell (internal dry reforming of methane); the direct coal gasification fuel cell [e.g., "Applied Highlights: a selection of the topics from the chemical literature", *Chem. & Ind.*, 17, 571-572 (1989); "A new process for direct coal gasification", *Platinum Metals Review*, 34, p. 35 (1990)],
- (iv) The development of simple (monometallic), economic and extremely active and selective automotive exhaust catalytic converters [e.g., V. Matsouka, M. Konsolakis, R.M. Lambert, I.V. Yentekakis, *Appl. Catal. B* 84, 715-722 (2008)], etc.
- (v) Catalyst nano-particles stabilization against thermal sintering [I. V. Yentekakis, G.i Goula, P. Panagiotopoulou, S.a Kampouri, M.J. Taylor, G. Kyriakou, R. M. Lambert, *Applied Catalysis B: Environmental*, 192 (2016) 357-364; Yentekakis et al., *Catalysis Letters*, 148 (2018) 341-347].

**PERSONAL:**

**NATIONALITY** : Greek  
**Born** : Crete, November 28, 1960.  
**Current Address** : School of Chemical & Environmental Engineering, Technical University of Crete, 73100 Chania, Crete, Greece  
Tel.: +30 28210 37752,  
Fax: +30 28210 37844  
e-mail: [yyentek@isc.tuc.gr](mailto:yyentek@isc.tuc.gr)

**UNIVERSITY EDUCATION:**

- **1978-1983:** B.S. Diploma in Chemical Engineering, University of Patras, Greece
- **1983-1987:** Ph.D. in Chemical Engineering (catalysis-electrocatalysis), University of Patras.  
*Title: "Heterogeneous Catalytic Phenomena in Trickle Bed Reactors and in High Temperature Solid Oxide Fuel cells", under the supervising of Prof. C.G. Vayenas*

**ACADEMIC EXPERIENCE, TRAINING AND SCIENTIFIC CAREER:**

- **1987-1988:** Postdoctoral Fellow, Dept of Chemical Engineering **Princeton University**, NJ, USA
- **1989-2019:** Department of Chemistry, **Cambridge University, UK**: Close collaboration with Professor R.M. Lambert (numerous research visits)
- **1988-2001:** Academic career in **University of Patras** and **ICE/HT-FORTH** as bellow:
  - 1988-1991: Postdoctoral Fellow, Dept Chemical Engineering, University of Patras, GR.
  - 1988-2001: Senior researcher and collaborating faculty member, ICE/HT-FORTH, Patras, Gr.
  - 1991-1994: Temporary Faculty Member, Dept. Chemical Engineering, Univ. of Patras, Gr.
  - 1994-2000: Lecturer, Dept. Chemical Engineering, University of Patras, GR.
  - 2000-2001: Assistant Professor, Dept. Chemical Engineering, University of Patras, GR.
- **2001-Today:** Academic career in **Technical University of Crete** as bellow:
  - 2001-2006: **Associate Professor** in Physical Chemistry, Department of Sciences, TUC, Greece.
  - 2001-Today: **Director** of the "Physical Chemistry and Chemical Processes" laboratory.
  - 2006-Today: **Full Professor of Physical Chemistry** (Heterogeneous Catalysis/ Electrocatalysis/ Surfaces and Interfaces), Department of Sciences (2006-2013), and School of Environmental Engineering (2013-today), Technical University of Crete, Greece.
  - 2007-2009: **Chairman**, Department of Sciences, Technical University of Crete, GR.
  - 2013-2017: **Member of the University Council**, Technical University of Crete, GR.
  - 2020-today: **Vice-dean**, School of Chemical & Environmental Engineering, TUC, GR.

**RESEARCH ACTIVITIES:**

**Prof. Yentekakis research activities in these positions involve the scientific areas:**

- **Heterogeneous Catalysis** and the role of surface and structural promoters. Synthesis and characterization of novel nano-structured catalyst formulations and composites with specific performance in environmental and energy applications.
- **Physical Chemistry of Surfaces and Interfaces**. Surface characteristics and chemistry evaluation by means of advanced microscopic and spectroscopic techniques (e.g., SEM, TEM, DRIFTS, XPS, XRD).
- **Electrochemical Promotion of Catalysis (EPOC)**; Non-Faradaic Electrochemical Modification of Catalytic Activity (NEMCA).
- **Environmental Catalysis and pollution control**: Catalytic Emissions Control of pollutants (CO, NO<sub>x</sub>, N<sub>2</sub>O, HCs, VOCs) from automotive and stationary sources; Catalytic Converters; Environmental Engineering

- **Electrocatalysis, Electrochemistry, Fuel Cells Science and Technology:** Analysis and design of novel fuel cell and electrochemical reactors; Direct Biogas Fuel Cells; Fused metal anode-Direct carbon fuel cells; H<sub>2</sub>S fuel cells; Chemical Cogeneration.
- **Chemical kinetics and thermodynamics:** Reactor and Chemical Processes Engineering.
- **Natural gas, biogas and CO<sub>2</sub> valorization, management and utilization.**
- **Hydrogen energy, Sustainable Energy, Power-to-Gas Technologies, Hydrocarbons Processing:** Hydrocarbons and biofuels reforming for H<sub>2</sub> and syngas production; CO<sub>2</sub> Capture and Utilization; CO<sub>2</sub>-reforming of Methane; Oxidative Coupling of Methane.

#### **ADMINISTRATIVE EXPERIENCES AND COMMITTEES:**

- Vice-Dean, School of Chemical & Environmental Engineering, TUC (2021-today)
- Alternate Member of the Senate, Technical University of Crete (2021-today)
- University Council Regular Member, Technical University of Crete (2013-2017)
- Chairman, Dept of Sciences, Technical University of Crete (2006-2009)
- Regular Member of the Senate, Technical University of Crete (2002-2003, 2007-2009)
- Alternate Member of the Senate, Technical University of Crete (2003-2007)
- Member of the Committee of Graduate Studies of the department of Sciences and the department of Environmental Engineering, Technical University of Crete (2001-today).
- Member of the Central University Committee for Economic and Research Development, Technical University of Crete (2005-2007).

#### **EDITORSHIPS:**

<i>α/α</i>	<i>Journal Title</i>	<i>Responsibilities</i>	<i>Publisher</i>
1	<a href="#">Nanomaterials</a>	Section Editor-in-Chief	MDPI
2	<a href="#">Frontiers in Environmental Chemistry</a>	Specialty Chief-Editor	Frontiersin.org
3	<a href="#">Frontiers in Environmental Science</a>	Associate Editor (up to 2017-19)	Frontiersin.org
4	<a href="#">Catalysts</a>	Section Editor (Environmental Catalysis)	MDPI
5	<a href="#">Molecules</a>	Section Editor (Physical Chemistry)	MDPI
6	<a href="#">Reactions</a>	Editorial Board	MDPI
7	<a href="#">Coatings</a>	Editorial Board	MDPI
8	<a href="#">Catalysis Research</a>	Editorial Board	LIDSEN
9	<a href="#">The Open Fuels &amp; Energy Science Journal (Discontinued-2018)</a>	Editorial Board	Bentham Open
10	<a href="#">The Open Conference Proceedings Journal (Discontinued-2020)</a>	Editorial Board	Bentham Open

#### **GUEST EDITOR of journal SPECIAL ISSUES:**

<i>α/α</i>	<i>Journal</i>	<i>Role</i>	<i>Special Issue Title</i>
1	<a href="#">Frontiers in Environmental Science</a>	Guest Editor	<a href="#">Advanced Utilization and Management of Biogas</a>
2	<a href="#">Catalysts</a>	Guest Editor	<a href="#">Emissions Control Catalysis</a>
3	<a href="#">Catalysts</a>	Guest Editor	<a href="#">Noble Metal Catalysts</a>
4	<a href="#">Nanomaterials</a>	Guest Editor	<a href="#">Advances in Heterocatalysis by Nanomaterials</a>
5	<a href="#">Catalysts</a>	Guest Editor	<a href="#">Nanomaterials in Catalysis Applications</a>
6	<a href="#">Nanomaterials</a>	Guest Editor	<a href="#">10<sup>th</sup> Anniversary of Nanomaterials: Recent Advances in Environmental nanoscience and Nanotechnology</a>

**TEACHING ACTIVITIES:**

Extensive experience of lecturing and examining in physical chemistry, environmental engineering and chemical engineering: Teaching of more than 110 semester courses at every level with the following courses' titles:

**(i) Undergraduate**

- Heterogeneous Catalysis
- Heterogeneous Reactor Engineering
- Chemical Kinetics and Reactor Engineering
- Introduction to Chemical Engineering
- Unit Operations & Heat Transfer
- Chemical and Energy Technologies
- Air pollution control
- Physical Chemistry
- Thermodynamics
- Energy and Fuels
- Gas Emissions Control Technologies
- Introduction to Chemical & Environmental Engineering

**(ii) Postgraduate**

- Special Aspects in Catalysis.
- Analysis and Design of Heterogeneous Reactors.
- Air Pollution Control.
- Physical and chemical operations-Analysis and Design.
- Modern aspects in chemical and energy technologies.
- Surface Science and Heterogeneous Catalysis.
- Mathematical modeling and Design of Physical and Chemical Operations.
- Advanced catalytic and electrocatalytic energy processes.
- Catalytic, electrocatalytic and electrochemical promotion.
- Biorefineries- valorization of wastes.
- Supervision of numerous Post-Doc (4) PhD (8) and MSc (>30) students.

**AWARDS & HONORS:**

- Crete Orthodox Academy Award	1978
- Athens Academy Award in the field of Chemistry	1992
- Hellenic Refinery of Aspropyrgos Fellowship	1984-1989
- ICE/HT-FORTH, Fellowship	1985-1987
- Chairman of international or national conferences' sessions:	>20

**MEMBER OF CONFERENCES' ORGANIZER and/or SCIENTIFIC COMMITTEES:**

- 3<sup>rd</sup> Panhellenic Catalysis Symposium, Patras, GR., 1993
- 1<sup>st</sup> Panhellenic Symposium of Chemical Engineering, Patras, GR., 1997
- 2<sup>nd</sup> Panhellenic Symposium of Chemical Engineering, Thessaloniki, GR., 1999
- 9<sup>th</sup> EuroConference on Solid State Ionics-Transport Properties, Patras, GR., 2004
- 3<sup>rd</sup> Panhellenic Symposium of Chemical Engineering, Athens, GR., 2001.
- 55<sup>th</sup> Annual Meeting of the Inter. Society of Electrochemistry, Thessaloniki, GR., 2004
- 5<sup>th</sup> Panhellenic Symposium of Chemical Engineering, Thessaloniki, GR., 2005
- 2<sup>nd</sup> National Conference of Hydrogen Technologies, Thessaloniki, 2005
- 8<sup>th</sup> Panhellenic Catalysis Congress, Cyprus, GR., 2006
- 10<sup>th</sup> Panhellenic Catalysis Congress, Metsovo, GR., 2008
- 11<sup>th</sup> Panhellenic Catalysis Congress, Athens, GR., 2010

- International Conference of Hydrogen Production (ICHP-11), Thessaloniki, 2011
- 12<sup>th</sup> Panhellenic Catalysis Congress, Crete, GR., 2012 (Symposium President and Organizer).
- 13<sup>th</sup> Panhellenic Catalysis Congress, Paleos Agios Athanasios Pellas, GR, 2014
- 14<sup>th</sup> Panhellenic Catalysis Symposium, Patras, GR., 2016
- 11<sup>th</sup> Panhellenic Symposium of Chemical Engineering, Thessaloniki, GR, 2017
- 6<sup>th</sup> International Conference on Environmental Chemistry & Engineering, July 24-25, 2017, Rome, Italy.
- International Conference on Renewable & Non Renewable energy Sources, November 9-11, 2017, Valencia, Spain.
- 15<sup>th</sup> Panhellenic Catalysis Symposium, Ioannina, GR, 2018
- 16<sup>th</sup> Panhellenic Catalysis Symposium, Chania, Crete, GR, 2020

#### REVIEWER OF SCIENTIFIC/RESEARCH ARTICLES:

More than 320 reviews in the following 59 international journal's titles:

a/a	Journal Title	Reviewed manuscripts
1	Applied Catalysis B-Environmental	46
2	Industrial & Engineering Chemistry Research	4
3	Journal of Catalysis	6
4	International Journal of Hydrogen Energy	18
5	Catalysis Today	2
6	Journal of Power Sources	57
7	Ionics	2
8	Advances in Environmental Research	1
9	Solid State Ionics	1
10	Electrochemical & Solid State Letters	1
11	Journal of the Electrochemical Society	1
12	Solar Energy Journal	1
13	Applied Surface Science	3
14	Water, Air & Soil Pollution: Focus	1
15	Studies in Surface Science and Catalysis	1
16	Journal of Alloys and Compounds	1
17	Journal of Solid State Electrochemistry	6
18	Electrochimica Acta	13
19	Reaction Kinetics, Mechanisms and Catalysis	7
20	Environmental Science & Pollution Research	3
21	Chemical Engineering Journal	2
22	Journal of Hazardous Materials	4
23	The Open Fuel & Energy Science Journal	16
24	The Open Environmental Engineering Journal	7
25	The Open Fuel Cells Journal	8
26	Τεχνικά Χρονικά επιστημονική έκδοση (TEE)	4
27	ACS Catalysis	3
28	Materials Science & Engineering B	1
29	Applied Energy	2
30	Energy Conversion & Management	2
31	HEFAT2008	1
32	Materials	10
33	Catalysts	18
34	Environmental Science & Technology	1
35	Catalysis Letters	2
36	Journal of Electrochemical Energy Conversion and Storage (JEECS)	1
37	Journal of Taiwan Institute of Chemical Engineering (JTICE)	1
38	Nanomaterials	11
39	Water Science and Technology	3
40	Catalysis Communications	8
41	Water Science and Technology	1

42	Sustainable Energy & Fuels	1
43	Advances in Building Energy Research	1
44	ACS Sustainable Chemistry & Engineering	1
45	Renewable Energy	1
46	Applied Sciences	1
47	Journal of Oil, Gas and Petrochemical Sciences	2
48	Reviews in Chemical Engineering	1
49	Frontiers in Energy Research	1
50	Frontiers in Environmental Science	2
51	Journal of Chemical Technology and Biotechnology	1
52	The Canadian Journal of Chemical Engineering	4
53	Energy & Fuels	1
54	Applied Catalysis A	4
55	Energies MDPI	2
56	Clean Technologies MDPI	2
57	The Journal of Physical Chemistry C	1
58	Catalysis Science & Technology	3
59	Journal of CO <sub>2</sub> Utilization	3
60	Frontiers in Chemistry	2
61	Renewable and Sustainable Energy Reviews	2
	Total reviews	323

**COLLABORATIONS:**

Professor R.M. Lambert	Faculty of Chemistry, Cambridge University, UK
Professor and Dean M. Amiridis	Chancellor, University of Illinois at Chicago, USA.
Dr. N. Bonanos	Senior Scientist, Technical University of Denmark, Risø National Laboratory for Sustainable Energy (Risø DTU).
Prof. G. Kyriakou	Faculty of Chemical Engineering and Applied Chemistry, Aston University, UK; Faculty of Chemical Engineering, University of Patras, GR.
Associate Prof. P. Leone	Faculty of Engineering, Politecnico di Torino, Italy
Professor X.E. Verykios	Faculty of Chemical Engineering, University of Patras, GR.
Professor C.G. Vayenas	Athens National Academy of Science and Faculty of Chemical Engineering, University of Patras, GR.
Professor D. Kondarides	Faculty of Chemical Engineering, University of Patras, GR.
Professor D. Mantzavinos	Faculty of Chemical Engineering, University of Patras, GR.
Professor S. Bebelis	Faculty of Chemical Engineering, University of Patras, GR.
Professor D. Gournis	Faculty of Material Science Engineering, University of Ioannina, GR.
Professor M. Karakassides	Faculty of Material Science Engineering, University of Ioannina, GR.
Dr. T. Ioannides	Research director A' of ICE/HT-FORTH, Patras, GR
Dr. S. Neophytides	Research director A' of ICE/HT-FORTH, Patras, GR
Dr. L. Nalbandian	Research faculty, NCR, Thessaloniki, GR
Professor M.A. Goula	Faculty of Environmental Engineering, Technological Education Institute of Western Macedonia, GR.
Professor N. Kalogerakis	Faculty of Environmental Engineering, TUC, GR.
Professor E. Diamadopoulos	Faculty of Environmental Engineering, TUC, GR.
Professor M. Stoukides	Faculty of Chemical Engineering, Aristotle Univ of Thessaloniki, GR
Professor N. Kallithrakas-Kontos	Faculty of Sciences, Technical University of Crete, GR
Assistant Prof. P. Panagiotopoulou	Faculty of Environmental Engineering, Technical University of Crete, GR
Professor Binlin Dou	University of Shanghai for Science and Technology, China
Professor Wei Chu	Faculty of Chemical Engineering, Sichuan University, China
Dr. Philippe Vernoux	Institut de Recherches sur la Catalyse et l'Environnement de Lyon, France

**PUBLISHED WORK:****a1) Research papers (publications) in international peer-reviewed journals: 125 (mean IF: 7.159)****a2) Research papers (publications) in national technical journals: 2****b) Patents: 3****c) Invited monograph (review paper of our work) in Scientific Journal: 1****d) Refereed publications in conference proceedings: 137****e) Invited Chapters in Handbooks published by Elsevier, Wiley-VCH and CRC publishers: 3****f) Technical reports (e.g., Reports to EU): > 300****g) Conference presentations: >150****h) Invited lectures in international conferences and academic or industrial institutions: >50**➤ **CITATION INDEX: >5120 citations (Google Scholar)**➤ **H-index: 43**➤ **Scientific articles written by others exclusively about our research:**

1. "Applied highlights: A selection of recent topics from the Chemical literature: Fuel cells for cogenerating electricity and SO<sub>2</sub>", N.P. Freestone, *Chemistry and Industry*, 17, September 4, 571-572 (1989).
2. "A New Process for Direct Coal Gasification", *Platinum Metals Review*, 34(1), 35 (1990).
3. "Chemical Engineers near 'holy grail'", *Chemistry and Industry*, 12, p444 (1994).
4. "One-step Process converts methane to ethylene in 85% yield", *Chem. & Eng. News*, June 13 (1994) p41.
5. "Recycling reactions", P. Szuromi, *Science*, 264, 1513 (1994)

➤ **BOOKS AND CHAPTERS IN BOOKS: 15**

1. "Unit Operations", I.V. Yentekakis, (in Greek), Patras University Press, 1995.
2. "Physical Separation Processes: Analysis and Design", I.V. Yentekakis, (in Greek), Kleidarithmos Publ., Athens, 2010.
3. "Current methods for energy conversion and utilization. Fuel Cells", I.V. Yentekakis, Patras University Press, (in Greek), 1998.
4. "Atmospheric Pollution and Control", I.V. Yentekakis, (in Greek), A. Tsialas publ., Thessaloniki, 1999.
5. "Atmospheric Pollution: effects, control and advanced alternative clean technologies", I.V. Yentekakis, (in Greek), Kleidarithmos Publ. Athens, 2010.
6. "Physical Chemistry", I.V. Yentekakis, (in Greek), Technical University of Crete Press, 2001.
7. "Thermodynamics", I.V. Yentekakis, (in Greek), Technical University of Crete Press, 2002.
8. "Environmentally friendly technologies for natural gas valorization and use", I.V. Yentekakis, (in Greek), Technical University of Crete Press, 2000.
9. "Analysis and Design of Chemical Reactors: Trickle-bed and Fluidized-bed Reactors", I.V. Yentekakis, (in Greek), University of Patras, 1998.
8. "Non-Faradaic Electrochemical Modification of Catalytic Activity A Status Report". C.G. Vayenas, S. Bebelis, I.V. Yentekakis and H.-G. Lintz, **MONOGRAPH**, *Catal. Today*, 11, 303-445 (1992)
9. "Electrocatalysis and Electrochemical Reactors", C.G. Vayenas, S. Bebelis, I.V. Yentekakis and S. Neophytides, *The CRC Handbook of Solid State Electrochemistry*, Chapter 13, 445-480 (1997)
10. "Electrochemical Modification of Catalytic Activity", C.G. Vayenas and I.V. Yentekakis, *Wiley-VCH Handbook of Heterogeneous Catalysis*, Eds. G. Ertl, H. Knozinger and J. Weitkamp, Weinheim/New York, Vol. 3, 1310-1325 (1997).

11. "Three-Way Catalysis", I.V. Yentekakis and M. Konsolakis, in Perovskites and Related Mixed Oxides: Concepts and Applications (P. Granger, V.I. Parvulescu, S. Kaliaguine and W. Prellier Eds.), 1<sup>st</sup> Ed., Wiley-VCH Verlag GmbH & Co. KGaA, Vol. 2, pp. 559-585 (2016).
12. "Advances in Heterocatalysis by Nanomaterials", Edited by Ioannis V. Yentekakis and Wei Chu, Printed Edition of the Special Issue Published in Nanomaterials, MDPI, [https://www.mdpi.com/journal/nanomaterials/special\\_issues/nano\\_heterocatalysis](https://www.mdpi.com/journal/nanomaterials/special_issues/nano_heterocatalysis).
13. "Emissions Control Catalysis", Edited by Ioannis V. Yentekakis and Philippe Vernoux, Printed Edition of the Special Issue Published in Catalysts, MDPI, [https://www.mdpi.com/journal/catalysts/special\\_issues/emissions\\_catalysis](https://www.mdpi.com/journal/catalysts/special_issues/emissions_catalysis).
14. "EPOC with alkaline conductors-implementations in emissions control catalysis", I.V. Yentekakis, P. Vernoux, A. Caravaca, in "Electrochemical Promotion of Catalysis" (C.G. Vayenas and P. Vernoux Eds.), Springer-Nature, in press.
15. "The effective-double-layer as an efficient tool for the design of sinter-resistant catalysts", I.V. Yentekakis, in "Electrochemical Promotion of Catalysis" (C.G. Vayenas and P. Vernoux Eds.), Springer-Nature, in press.

#### Summary of published work in journals and international Books:

Journal	Number of publications	Journal Impact Factor, IF
Science	1	47.728
Applied Catalysis B: Environmental	18	19.503
Journal of Power Sources	1	9.127
Journal of Catalysis	14	7.920
Chemical Engineering Journal	1	13.273
Journal of Hazardous Materials	1	10.588
Electrochimica Acta	1	6.901
Catalysis Today	3	6.766
Applied Catalysis A: General	1	5.706
International Journal of Hydrogen Energy	5	5.816
Physical Chemistry Chemical Physics	1	3.676
Journal of the Electrochemical Society	1	4.316
Chemical Engineering Science	1	4.311
Journal of Physical Chemistry B	1	2.991
Journal of Physical Chemistry A	1	2.781
Industrial & Engineering Chemistry Research	2	3.720
Catalysts	5	4.146
Catalysis Letters	2	3.186
Solid State Ionics	6	3.785
Topics in Catalysis	8	2.910
Ionics	8	2.817
Applied Physics A	1	2.584
Nonlinear Analysis: Theory, Methods & Appl.	1	2.064
Kinetics and Catalysis	1	1.000
Global NEST Journal	1	1.150
Platinum Metals Review	1	0.571
Studies in Surface Science and Catalysis	7	1.600
ACS series	1	0.677(JCR-2000)
ACS division of Petroleum Chem. Inc Prepr.	2	0.677(JCR-2000)
Materials Science Forum	1	0.461(JCR-2002)
Journal of Environmental Chemical Engineering	2	5.909
Frontiers in Environmental Science	3	4.581
Nanomaterials	4	5.076
Materials	1	3.623

Materials Today: Procedings	1	1.800
Frontiers in Environmental Chemistry	1	-
Advanced Materials Letters	1	-
The Electrochemical Society Ink.	5	-
ISSI Letters	1	0.625 (2000)
Lecture Series in Computers & Computational Sciences	1	-
Chemistry Proceedings	2	-
ACS Omega	1	3.512
Molecular Catalysis	1	5.062
J CO <sub>2</sub> Utilization	1	7.132
Chemical Engineering & Technology	1	1.728
Handbooks	5	-
<b>Total publications &amp; Mean Impact Factor</b>	<b>129</b>	<b>7.159</b>

**Post-Doc, PhDs, Masters and Diploma Supervising:**

- **Supervision of Post-Docs: 4**
- **Supervisor of PhDs: 8**
  - Dr. M. Konsolakis
  - Dr. G. Goula
  - Dr. T. Papadam
  - Dr. V. Matsuka
  - Mrs. G. Botzolaki
  - Mr G. Artemakis
  - Ms A. Rontogianni
  - Ms E. Nikolaraki
- **Supervisor of MSc.: > 30**
- **Supervisor of Engineering Diploma Works: >70**

**Funded RESEARCH PROJECTS: 36 (in 21 as Scientific Co-ordinator)**

- 1983-86, "Cogeneration of Electric Energy and Useful Chemicals in Fuel Cells", Funded by VW Stiftung, F.R. of Germany, (DM 90,000). Participation as Senior Researcher.
- 1987-90, "Multichannel fuel cell reactors ", Funded by EU, Non-nuclear Energy Program, EN3E/167/E, (100,000 €). Participation as Senior Researcher.
- 1988-92, "Fabrication and Evaluation of Small SOFC Reactors ", Funded by EU, Non-nuclear Energy Program, EN3E/D2/407/UK, (ECU 115,000). Participation as Senior Researcher.
- 1988-91, "Cogeneration of Electricity and Chemicals in Solid Electrolyte Cells with Catalytic Electrodes", Funded by VW Stiftung, F.R. of Germany, (DM 65,000). Participation as Senior Researcher.
- 1990-93, "Fundamental Studies of NonFaradaic Catalysis", Funded by EU, JOULE Programme, (100,000 €). Participation as senior Researcher.
- 1990-93, "Operational Tests of SOFC Modules and Use of SOFC as Chemical Reactors", Funded by EU, JOULE Programme, (65,000 €). Participation as Senior Researcher.
- 1991-94, "Use of SOFC as Chemical Reactor: Non-Faradaic Electrochemical Modification of Catalytic Activity and Selectivity of Partial Oxidation and CO Hydrogenation Catalysts", Funded by EU, JOULE Programme, (300,000 €). Participation as Senior Researcher.
- 1992-95, "Development of improved catalytic converters", Funded by EU, STRIDE Programme, (385,000 €). Participation as Senior Researcher.

- 1992-95, "New SOFC Materials and Technology", Funded by EU, CEC JOULE Programme, (98,000 €). Participation as Senior Researcher.
- 1992-93, "Operational Tests of SOFC and use of SOFC as Chemical Reactor", Funded by EU, CEC JOULE Programme, (50,000 €). Participation as Senior Researcher.
- 1993-96, "Fundamental Studies in Non-Faradaic Catalysis", Funded by British Council (Hellenic-British collaboration), (16,000 €). Participation as Senior Researcher.
- 1998-2001, "Promotion of environmentally important catalytic reactions" Funded by ICE/HT-FORTH, Internal ICE/HT-FORTH programme (9,000 €). **Coordinator**.
- 1999-2001, "Promotion by alkalies in emission control catalysis", Funded by GSRT and British Council, Athens (Greece-British Joint Research and Technology Programmes), (18,000 €). **Coordinator**.
- 2003-2007, "Kinetics, electrokinetics behavior and electrodic phenomena in novel fuel cells for environmentally important reactions", Funded by GSRT and EU, Program HERAKLEITOS, (65,000 €). **Coordinator**.
- 2005-2008, "A Novel process for direct production of electrical energy and hydrogen from urban and industry wastewater treatment", Funded by GSRT and EU, Program PENED, (114,000 €). **Coordinator**.
- 2005-2008, "Development of novel very effective and selective automotive catalytic converters", Funded by GSRT and EU, Program PENED, (114,000 €). **Coordinator**.
- 2006-2008, "Development of novel bi-metallic anodic materials for hydrocarbons' solid oxide fuel cells", Funded by GSRT and EU, Program Non-EU-242, (65,000 €). **Coordinator**.
- 2007-2008, "Hydrogen production from catalytic treatment of hydrocarbons and biofuels", Funded by Technical University of Crete, (5,000 €). **Coordinator**.
- 2008-2009, "Novel fuel cells for the production of electrical energy from biogas, biofuels and hydrocarbons", Funded by Technical University of Crete, (10,000 €). **Coordinator**.
- 2011-2014, "Advanced technology fuel cells for direct energy production from biogas and biomass derived fuels", Funded by GSRT and EU, Program HERAKLEITOS II, (45,000 €). **Coordinator**.
- 2011-2015, "Development of novel doubly promoted (surface and structural) catalytic systems for the simultaneous emissions' abatement of NO<sub>x</sub> and N<sub>2</sub>O", Funded by GSRT and EU, Program THALIS, (600,000 €). **Coordinator for TUC**.
- 2012-2014, "Power valorization and treatment of enological wastewater", Funded by GSRT and EU, Program SPA, (140,000 €). **Coordinator for TUC**.
- 2016-2017, "Environmental management of CO<sub>2</sub>: its conversion to added-value chemicals", Funded by Special Research Funds Account, Technical University of Crete, (12,000 €). **Coordinator**.
- 2018 – 2021, Project title: "*A novel process for the efficient and eco-friendly valorization of biogas and CO<sub>2</sub> emissions: Complete conversion to ethylene (Eco-Ethylene)*", **Funded by:** Ministry of Education, General Secretariat of Research and Technology, **TUC's Budget:** 275.000€ (total 1.000.000€). **Lead (coordinator) Partner**.
- 2019-2022, Project title: "*Development of new Catalysts for Efficient De-NO<sub>x</sub> Abatement of Automobile Exhaust Purification (Acronym: CatEfDeNO<sub>x</sub>)*", **Funded by:** General Secretariat of Research and Technology (GSRT), **TUC's Budget:** 160.000€ (total 424.520€). **Coordinator**.
- 2021–2023, Project title: "*Development and pilot scale demonstration of an innovative, effective and eco-friendly process for the production of clean hydrogen and electrical power generation from biogas (Eco-Bio-H<sub>2</sub>-FCs)*", **Funded by:** Ministry of Education, General Secretariat of Research and Technology, **TUC's Budget:** 193.000€ (total 1.000.000€). **Lead (coordinator) Partner**.

**PATENTS:**

- P1. European Patent EP 0480116 B1 "Metal-Solid Electrolyte Catalysts", C.G. Vayenas, S. Bebelis, I. V. Yentekakis and P. Tsiakaras (1996/30). (**Bayed by BASF**)
- P2. PCT Patent Application, No: GR-0001-94, Jan28, 1994 "Method and Apparatus for forming Ethylene or Ethane and Ethylene from Methane", C.G. Vayenas, I.V. Yentekakis and Jiang Yi (1994).
- P3. European Patent EP 0665047 B1 "New three-way catalysts with Pt, Rh and Pd, each supported on a separate support" X. Verykios, C.G. Vayenas, I.V. Yentekakis, E. Papadakis and C. Pliangos (1998/35).

**I.V. Yentekakis LIST OF PUBLICATIONS****A. Peer-Reviewed International Journals:**

- J1) P.G. Debenedetti, C.G. Vayenas, **I.V. Yentekakis**, L.L. Hegedus. Mathematical Modelling of Cross-Flow, Solid State Electrochemical Reactors. *ACS Ser.*, 10 (1984) 171-196.
- J2) C.G. Vayenas, P.G. Debenedetti, **I.V. Yentekakis**, L.L. Hegedus. Cross-Flow, Solid State Electrochemical Reactors: A Steady-State Analysis. *Industrial & Engineering Chemistry: Fundamentals* 24 (1985) 316-324
- J3) **I.V. Yentekakis**, C.G. Vayenas. Effectiveness Factors for Reactions Between Volatile and Non-volatile Components in Partially Wetted Catalysts. *Chemical Engineering Science* 42 (1987) 1323-1332
- J4) **I.V. Yentekakis**, S. Neophytides, C.G. Vayenas. Solid Electrolyte Aided Study of the Mechanism of CO Oxidation on Polycrystalline Platinum. *Journal of Catalysis* 111 (1988) 152-170
- J5) **I.V. Yentekakis**, C.G. Vayenas. The Effect of Electrochemical Oxygen Pumping on the Steady-State and Oscillatory Behavior of CO Oxidation on Polycrystalline Pt. *Journal of Catalysis* 111 (1988) 170-188
- J6) **I.V. Yentekakis** and C.G. Vayenas. Chemical Cogeneration in Solid Electrolyte Cells: The Oxidation of H<sub>2</sub>S to SO<sub>2</sub>. *Journal of the Electrochemical Society* 136(4) (1989) 996-1002
- J7) C.G. Vayenas, S. Bebelis, S. Neophytides, **I.V. Yentekakis**. Non-Faradaic Electrochemical Modification of Catalytic Activity in Solid Electrolyte Cells. *Applied Physics A* 49 (1989) 95-103
- J8) **I.V. Yentekakis**, P.G. Debenedetti, B. Costa. A Novel Fused Metal Anode, Solid Electrolyte Fuel Cell for Direct Coal Gasification: A Steady-State Model. *Industrial & Engineering Chemistry Research* 28 (1989) 1414-1424
- J9) C.G. Vayenas, S. Bebelis, **I.V. Yentekakis**, P. Tsiakaras, H. Karasali. Non-Faradaic Electrochemical Modifications of the Catalytic Activity of Platinum Metals: REVERSIBLE PROMOTION OF PLATINUM METALS CATALYSTS. *Platinum Metals Review* 34(3) (1990) 122-130
- J10) C.G. Vayenas, S. Bebelis, **I.V. Yentekakis**, P. Tsiakaras, H. Karasali, Ch. Karavasilis. Solid Electrolytes for in situ Promotion of Catalyst surfaces: The NEMCA effect. *ISSI Lett.* 2 (1991) 5-7
- J11) C.G. Vayenas, S. Bebelis, **I.V. Yentekakis**, P. Tsiakaras, H. Karasali, Ch. Karavasilis. Catalytic and Electrocatalytic Reactions in Solid Electrolyte Cells: The NEMCA effect". *Materials Science Forum* 76 (1991) 141-149.
- J12) C.G. Vayenas, S. Bebelis, **I.V. Yentekakis**, H.-G. Lintz. Non-Faradaic Electrochemical Modification of Catalytic Activity A Status Report. *Catalysis Today* 11 (1992) 303-445
- J13) C.G. Vayenas, S. Bebelis, **I.V. Yentekakis**, S. Neophytides. Non-Faradaic Electrochemical Modification of Catalytic Activity: The Work Function of Electrodes in Solid Electrolyte Cells. *Solid State Ionics* 53-59 (1992) 97-110

- J14) I.V. Yentekakis, S. Bebelis. Study of the NEMCA Effect in a Single-Pellet Catalytic Reactor. [\*Journal of Catalysis 137 \(1992\) 278-283\*](#)
- J15) C.G. Vayenas, S. Bebelis, I.V. Yentekakis, P. Tsakaras, H. Karasali, Ch. Karavasilis. Solid Electrolytes for In Situ Promotion of Catalyst Surfaces: The NEMCA Effect. [\*Studies in Surface Science and Catalysis 75 \(1992\) 2139-2142\*](#)
- J16) C.G. Vayenas, S. Bebelis, I.V. Yentekakis, S. Neophytides, Jiang Yi. Ion spillover as the origin of NEMCA effect. [\*Studies in Surface Science and Catalysis 77 \(1993\) 111-116\*](#)
- J17) I.V. Yentekakis, S.G. Neophytides, A.C. Kaloyiannis, C.G. Vayenas. Kinetics of Internal Steam Reforming of CH<sub>4</sub> and their effect on SOFC Performance. *The Electrochemical Society Inc.*, (S. C. Singhal and H. Iwahara, Eds), Vol. 93-4 (1993) 904-912
- J18) S. Bebelis, I.V. Yentekakis, S. Neophytides, P. Tsakaras, H. Karasali, C.G. Vayenas. The use of SOFC for Chemical Cogeneration and for Electrochemical Promotion (NEMCA). *The Electrochemical Society Inc.*, (S.C. Singhal and H. Iwahara, Eds), Vol. 93-4 (1993) 926-937
- J19) C.G. Vayenas, S. Bebelis, I.V. Yentekakis, S. Neophytides, Y. Jiang. Non-Faradaic Electrochemical Modification of Catalytic Activity. *The Electrochemical Society Inc.*, (T.A. Ramanarayanan, W.L. Worrell and H.L. Tuller, Eds), 94/12 (1994) 230-237.
- J20) I.V. Yentekakis, G. Moggridge, C.G. Vayenas, R.M. Lambert. In Situ Controlled Promotion of Catalyst Surfaces via NEMCA: The Effect of Na on Pt Catalyzed CO Oxidation. [\*Journal of Catalysis 146 \(1994\) 292-305\*](#)
- J21) C.G. Vayenas, S. Bebelis, I.V. Yentekakis, Ch. Karavasilis, Y. Jiang. Non-Faradaic Electrochemical Modification of Catalytic Activity: Solid Electrolytes as Active Catalyst Supports. [\*Solid State Ionics 72 \(1994\) 321-327\*](#)
- J22) C.G. Vayenas, S. Ladas, S. Bebelis, I.V. Yentekakis, S. Neophytides, Jiang Yi, Ch. Karavasilis, C. Pliangos. Electrochemical Promotion in Catalysis: Non-Faradaic Electrochemical Modification of Catalytic Activity. [\*Electrochimica Acta 39 \(1994\) 1849-1855\*](#)
- J23) Y. Jiang, I.V. Yentekakis, C.G. Vayenas. Potentional-Programmed Reduction: A new Technique for Investigating the Thermodynamics and Kinetics of Chemisorption on Catalysts Supported on Solid Electrolytes. [\*Journal of Catalysis 148 \(1994\) 240-251\*](#)
- J24) I.V. Yentekakis, C.G. Vayenas. In situ controlled Promotion of Pt for CO Oxidation via NEMCA using CaF<sub>2</sub> as the Solid Electrolyte. [\*Journal of Catalysis 149 \(1994\) 238-242\*](#)
- J25) Y. Jiang, I.V. Yentekakis, C.G. Vayenas. Methane to Ethylene with 85% Yield in a Gas-Recycle Electrocatalytic Reactor Separator. [\*Science 264 \(1994\) 1563-1566\*](#)
- J26) I.V. Yentekakis, C. Pliangos, V.G. Papadakis, X.E. Verykios, C.G. Vayenas. Support and NEMCA Induced Promotional Effects on the Activity of Automobile Exhaust Catalysts. [\*Studies in Surface Science and Catalysis 96 \(1995\) 375-385\*](#)
- J27) R.M. Lambert, I.R. Harkness, I.V. Yentekakis, C.G. Vayenas. Electrochemical Promotion in Emission Control Catalysis. [\*Ionics 1\(1\) \(1995\) 29-31\*](#)
- J28) A.C. Kaloyannis, C.A. Pliangos, I.V. Yentekakis, C.G. Vayenas. In Situ Controlled Promotion of Catalyst Surfaces via Solid Electrolytes: Ethylene Oxidation on Rh and Propylene Oxidation on Pt. [\*Ionics 1\(2\) \(1995\) 159-164\*](#)
- J29) C.G. Vayenas, I.V. Yentekakis, S.I. Bebelis, S.G. Neophytides. In Situ Controlled Promotion of Catalyst Surfaces via Solid Electrolytes: The NEMCA Effect. [\*Ber. Bunsenges. Phys. Chem. 99 \(1995\) 1393-1401\*](#)

- J30) C.A. Pliangos, **I.V. Yentekakis**, X.E. Verykios and C.G. Vayenas. Non-Faradaic Electrochemical Modification of Catalytic Activity: VIII: Rh catalyzed  $C_2H_4$  oxidation. [\*Journal of Catalysis 154 \(1995\) 124-136\*](#)
- J31) **I.V. Yentekakis**, Y. Jiang, M. Makri and C.G. Vayanas. Ethylene Production from Methane in a Gas Recycle Electrocatalytic Reactor Separator. [\*Ionics, 1\(4\), 286-291 \(1995\)\*](#)
- J32) R.M. Lambert, M. Tikhov, A. Palermo, **I.V. Yentekakis**, C.G. Vayenas. Electrochemical Promotion of Environmentally Important Catalytic Reactions. [\*Ionics 1\(5&6\) \(1995\) 366-376\*](#)
- J33) **I.V. Yentekakis**, Y. Jiang, S. Neophytides, S. Bebelis, C.G. Vayenas. Catalysis, Electrocatalysis and Electrochemical Promotion of the Steam Reforming of Methane over Ni Film and Ni-YSZ cermet Anodes. [\*Ionics 1 \(5&6\) 91995 491-498\*](#)
- J34) A.C. Kaloyannis, C.A. Pliangos, D.T. Tsipakides, **I.V. Yentekakis**, S.G. Neophytides, S. Bebelis, C.G. Vayenas. Electrochemical Promotion of Catalyst Surfaces Deposited on Ionic and Mixed Conductors. [\*Ionics 1 \(5&6\) \(1995\) 414-420\*](#)
- J35) **I.V. Yentekakis**, S. Bebelis, S. Neophytides, C.G. Vayenas. Non-Faradaic Electrochemical Modification of Catalytic Activity of Metal Films Deposited on Solid Electrolytes. *The Electrochemical Society Inc*, (J. Bates, Ed), Vol. 95/22 (1996) 87-101
- J36) R.M. Lambert, M. Tinkov, A. Palermo, **I.V. Yentekakis**. Electrochemical Promotion of Alkene Oxidation by Nitric Oxide Over Pt /  $\beta''$ -Alumina. [\*ACS Division of Petroleum Chemistry Inc. Preprints 41\(1\) \(1996\) 34-36\*](#)
- J37) **I.V. Yentekakis**, M. Makri, Y. Jiang, C.G. Vayenas. A Novel Gas-Recycle Reactor-Separator for the Oxidative Coupling of Methane. [\*ACS Division of Petroleum Chemistry Inc. Preprints 41 \(1\) \(1996\) 119-124\*](#)
- J38) V.G. Papadakis, C.A. Pliangos, **I.V. Yentekakis**, X.E. Verykios, C.G. Vayenas. Development of High Performance, Pd-based, Three Way Catalysts. [\*Catalysis Today 29 \(1996\) 71-75\*](#)
- J39) C.A. Pliangos, **I.V. Yentekakis**, S. Ladas, C.G. Vayenas. Non-Faradaic Electrochemical Modification of Catalytic Activity: 9. Ethylene Oxidation on Pt Deposited on  $TiO_2$ . [\*Journal of Catalysis 159 \(1996\) 189-203\*](#)
- J40) I.R. Harkness, C. Hardacre, R.M. Lambert, **I.V. Yentekakis**, C.G. Vayenas. Ethylene Oxidation over Pt: In Situ Electrochemically Controlled Promotion Using Na -  $\beta''$  Alumina and Studies with a Pt(111)/Na Model Catalyst. [\*Journal of Catalysis 160 \(1996\) 19-26\*](#)
- J41) A. Palermo, R.M. Lambert, I.R. Harkness, **I.V. Yentekakis**, O. Marina, C.G. Vayenas. Electrochemical Promotion by Na of the Platinum-Catalyzed Reaction between CO and NO. [\*Journal of Catalysis 161 \(1996\) 471-479\*](#)
- J42) M. Makri, Y. Jiang, **I.V. Yentekakis**, C.G. Vayenas. Oxidative Coupling of Methane to Ethylene with 85% Yield in a Gas Recycle Electrocatalytic or Catalytic Reactor Separator. [\*Studies in Surface Science and Catalysis 101 \(1996\) 387-395\*](#)
- J43) A. Palermo, M.S. Tinkov, N.C. Filkin, R.M. Lambert, **I.V. Yentekakis**, C.G. Vayenas. Electrochemical Promotion of NO Reduction by CO and by Propene. [\*Studies in Surface Science and Catalysis 101 \(1996\) 513-521\*](#)
- J44) S.G. Neophytides, S. Bebelis, **I.V. Yentekakis**, Y. Jiang, C. Pliangos, Ch. Karavasilis, S. Ladas and C.G. Vayenas. In Situ Controlled Promotion of Catalyst Surfaces: Non-Faradaic Electrochemical Modification of Catalytic Activity. [\*Kinetics and Catalysis 37\(5\) \(1996\) 715-724\*](#)
- J45) Y. Jiang, I.V. Yentekakis, M. Makri, C.G. Vayenas. Oxidative Coupling of Methane in a Solid Oxide Fuel Cell Reactor. *The Electrochemical Society Inc*, (U. Stimming, S.C. Singhal, H. Tagawa and W. Lehnert, Eds), Vol. 97-18 (1997) 235-243

- J46) O.A. Marina, **I.V. Yentekakis**, C.G. Vayenas, A. Palermo, R.M. Lambert. In Situ Controlled Promotion of Catalyst Surfaces via NEMCA: The effect of Na on the Pt-catalysed NO reduction by H<sub>2</sub>. *Journal of Catalysis* **166** (1997) 218-228
- J47) C. Pliangos, **I.V. Yentekakis**, V.G. Papadakis, C.G. Vayenas and X.E. Verykios. Support-induced Promotional Effects on the Activity of Automotive Exhaust Catalysts: I. The case of oxidation of light hydrocarbons (C<sub>2</sub>H<sub>4</sub>). *Applied Catalysis B: Environmental* **14** (1997) 161-173
- J48) **I.V. Yentekakis**, A. Palermo, M. Tinkov, N.C. Filkin and R.M. Lambert. In Situ Electrochemical Promotion by Sodium of the Platinum-Catalysed Reduction of NO by Propene. *The Journal of Physical Chemistry B* **101** (1997) 3759-3768
- J49) V.G Papadakis, C.A. Pliangos, **I.V. Yentekakis**, X.E. Verykios, C.G. Vayenas. Improvement of Automotive Exhaust Catalysts by Support and Electrochemical Modification Induced Promotional Effects. *Nonlinear Analysis: Theory, Methods and Applications* **30**(4) (1997) 2353-2361
- J50) C.G. Vayenas, S. Bebelis, **I.V. Yentekakis**, S. Neophytides. Electrocatalysis and Electrochemical Reactors. *The CRC Handbook of Solid State Electrochemistry*, Chapter **13**, 445-480 (1997)
- J51) C.G. Vayenas, **I.V. Yentekakis**. Electrochemical Modification of Catalytic Activity. *Wiley-VCH Handbook of Heterogeneous Catalysis*, Eds. G. Ertl, H. Knozinger and J. Weitkamp, Weinheim/New York, Vol. **3**, 1310-1325 (1997)
- J52) **I.V. Yentekakis**, Y. Jiang, M. Makri, C.G. Vayenas. Oxidative Coupling of Methane to Ethylene with 85% Yield in a Gas Recycle Electrocatalytic or Catalytic Reactor Separator. *Studies in Surface Science and Catalysis* **107** (1997) 307-312
- J53) **I.V. Yentekakis**, A. Palermo M.S. Tikhov, N.C. Filkin, R.M. Lambert. Electrochemical Promotion in Emission Control Catalysis: The role of Na for the Pt-catalysed Reduction of NO by Propene. *Studies in Surface Science and Catalysis* **116** (1998) 255-264
- J54) **I.V. Yentekakis**, R.M. Lambert, M.S. Tikhov, M. Konsolakis, V. Kioussis. Promotion by Sodium in Emission Control Catalysis: A kinetic and spectroscopic study of the Pd-catalysed Reduction of NO by Propene. *Journal of Catalysis* **176** (1998) 82-92
- J55) **I.V. Yentekakis**, R.M. Lambert, M. Konsolakis, V. Kioussis. The Effect of Sodium on the Pd-catalysed Reduction of NO by Methane. *Applied Catalysis B: Environmental* **18** (1998) 293-305
- J56) M. Konsolakis, A. Palermo, M.S. Tikhov, R.M. Lambert, **I.V. Yentekakis**. Electrochemical vs. Conventional Promotion: A new Tool for Design Effective, Highly Dispersed, Conventional Catalysts. *Ionics* **4**(1-2) (1998) 148-156
- J57) **I.V. Yentekakis**, M. Konsolakis, V. Kioussis, R.M. Lambert, M.S. Tikhov. Promotion by Sodium in Emission Control Catalysis: The Difference between Alkanes and Alkenes in the Pd-Catalysed Reduction of NO by Hydrocarbons. *Global NEST Journal*. **1**(2) (1999) 121-130 (1999).
- J58) **I.V. Yentekakis**, M. Konsolakis, R.M. Lambert, N. Macleod, L. Nalbantian. Extraordinarily Effective Promotion by Sodium in Emission Control Catalysis: NO Reduction by Propene over Na-Promoted Pt/γ-Al<sub>2</sub>O<sub>3</sub>. *Applied Catalysis B: Environmental* **22** (1999) 123-133
- J59) **I.V. Yentekakis**, P.G. Debenedetti, B. Costa, M. Konsolakis, V. Kioussis. Direct Coal Gasification with Simultaneous Production of Electricity in a Novel Fused Metal Anode SOFC: A Theoretical Approach. *Ionics* **5** (1999) 460-471
- J60) **I.V. Yentekakis**, M. Konsolakis, R.M. Lambert, A. Palermo, M. Tikhov. Successful application of electrochemical promotion to the design of effective conventional catalyst formulation. *Solid State Ionics* **136/137** (2000) 783-790
- J61) M. Konsolakis, N. Macleod, J. Isaac, **I.V. Yentekakis**, R.M. Lambert. Strong promotion by Na of Pt/γ-Al<sub>2</sub>O<sub>3</sub> catalysts operated under simulated exhaust conditions. *Journal of Catalysis* **193** (2000) 330-337

- J62) M. Konsolakis, **I.V. Yentekakis**. Strong promotional effects of Li, K, Rb and Cs on the Pt-catalysed reduction of NO by propene. [\*Applied Catalysis B: Environmental\* 29 \(2001\) 103-113](#)
- J63) M. Konsolakis, **I.V. Yentekakis**. The Reduction of NO by propene over Ba-Promoted Pt/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> Catalysts. [\*Journal of Catalysis\* 198 \(2001\) 142-150 \(2001\)](#)
- J64) M. Konsolakis, **I.V. Yentekakis**, A. Palermo, R.M. Lambert. Optimal promotion by Rubidium of the NO+CO Reaction over Pt/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> Catalysts. [\*Applied Catalysis B: Environmental\* 33 \(2001\) 293-302](#)
- J65) **I.V. Yentekakis**, R.M. Lambert, M. Konsolakis, N. Kallithrakas-Kontos. On the effects of residual chlorine and of barium promotion on Pt/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> catalysts in the reduction of NO by propene. [\*Catalysis Letters\* 81 \(2002\) 181-185](#)
- J66) **I.V. Yentekakis**, V. Tellou, G. Botzolaki and I.A. Rapakousios. A comparative study of the C<sub>3</sub>H<sub>6</sub>+NO+O<sub>2</sub>, C<sub>3</sub>H<sub>6</sub>+O<sub>2</sub> and NO+O<sub>2</sub> reactions in excess oxygen over Na-promoted Pt/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> catalysts. [\*Applied Catalysis B: Environmental\* 56 \(2005\) 229-239](#)
- J67) **I.V. Yentekakis**. Open- and closed-circuit study of an intermediate temperature SOFC directly fueled with simulated biogas mixtures. [\*Journal of Power Sources\* 160 \(2006\) 422-425](#)
- J68) G. Goula, V. Kiousis, L. Nalbandian, **I.V. Yentekakis**. Catalytic and electrocatalytic behaviour of Ni-based cermet anodes under internal reforming of CH<sub>4</sub>+CO<sub>2</sub> mixtures in SOFCs. [\*Solid State Ionics\* 177 \(2006\) 2119-2123](#)
- J69) M. Konsolakis, M. Vrontaki, G. Avgouropoulos, T. Ioannides, **I.V. Yentekakis**. Novel doubly-promoted catalysts for lean de-NOx by H<sub>2</sub>+CO: Pd(Na)/Al<sub>2</sub>O<sub>3</sub>-(TiO<sub>2</sub>). [\*Applied Catalysis B: Environmental\* 68 \(2006\) 59-70](#)
- J70) **I.V. Yentekakis**, G. Goula, T. Papadam. A Novel Biogas-Fuelled-SOFC Aided Process for Direct Production of Electricity from Wastewater Treatment: Comparison of the Performances of High and Intermediate Temperature SOFCs. [\*Lecture Series on Computer and Computational Sciences\* 7 \(2006\) 624-628](#)
- J71) **I.V. Yentekakis**, M. Konsolakis, I.A. Rapakousios and V. Matsouka. Novel electropositively promoted monometallic (Pt-only) catalytic converters for automotive pollution control. [\*Topics in Catalysis\* 42-43 \(2007\) 393-397](#)
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