GEORGE E. MARNELLOS

University of Western Macedonia, Department of Mechanical Engineering
Bakola & Sialvera, 50100 Kozani, Greece
Tel.: +30 24610 56690, Fax: +30 24610 56601, e-mail: gmarnellos@uowm.gr
Centre for Research & Technology Hellas, Chemical Process & Energy Resources Institute
6th km. Charilaou – Thermi Rd., 57001 Thermi, Thessaloniki, Greece
Tel.: +30 2310 498120, Fax: +30 2310 498130, e-mail: marnel@cperi.certh.gr

SUMMARY

Born in 1970, Dr. Marnellos graduated the Dept. of Chemical Engineering at Aristotle University of Thessaloniki (AUTH) in 1995. He obtained his Ph.D. in 1999 from the AUTH, and a Master degree in Business Administration from the Macedonia University (Thessaloniki) in 1998. Since 2003, he is appointing an academic position (today as a Professor) in the Department of Mechanical Engineering at the University of Western Macedonia (UoWM - Kozani, Greece), and he is also an affiliated faculty member in the Chemical Process & Energy Resources Institute (CPERI) at the Centre for Research & Technology Hellas (CERTH). He was the Vice Rector for Financial Planning, Infrastructure & Development and the Chairman of Research Committee at UoWM (2016-2019). He is the co-author of 76 papers in international scientific journals, 26 in international conference proceedings, 78 in national conference proceedings and 2 book chapters, concerning heterogeneous catalysis, solid state electrochemistry, biomass energy conversion in several energy and environmental applications including the development of approaches for efficient energy storage of intermittent excess RES power and of CO_2 emissions utilization. He is also holding an international patent, which deals with the use of high temperature proton conducting membrane reactors for electro-catalytic ammonia synthesis at atmospheric pressure. In 2004, he established the research group of of Chemical Process Engineering of Sustainable Fuels and Pollution Control Technologies. Marnellos' group mission is to stimulate and conduct high-level fundamental and applied research in the fields of hydrocarbons processing (natural gas valorisation, production of olefins), hydrogen (iso-octane and bioethanol reforming, steam and H_2S electrolysis, electrochemical membrane reactors for hydrogen generation and separation) and fuel cell (direct hydrocarbon and solid carbon high temperature ceramic fuel cells) technologies, CO_2 utilization (hydrogenation to methanol and methane, electrolysis toward CO), air pollution control (NO_X, VOCs, etc) and biomass to energy conversion technologies. Based on his efforts for research and institutional funding, the group was rapidly staffed and equipped with over 3 M€ of modern and high quality analytical infrastructure. Today, Prof. Marnellos is the Director of Energy & Pollution Control Systems Engineering Laboratory at the Department of Mechanical Engineering of the Western Macedonia University. He has participated in extended European and national research consortiums. In this context, he had the opportunity to develop and expand a valuable network of collaborators both in Greece and around the globe, including worldwide appreciated academic and research institutions and well-known companies. Prof. Marnellos published work has been worldwide acknowledged with more than 1300 citations (excluding self-citations), while special articles have been written by others in Journals' and newspapers' editorials referring to the novel method for ammonia synthesis. He is a regular reviewer in relevant scientific Journals and research funding agencies (European Commission – DG Move, Fuel Cell and Hydrogen Joint Undertaking, Research Council of Norway, M-ERANET, etc) and he is/was a member in the organizing and scientific committees of international and national scientific conferences. In 2010, he obtained the Fulbright research scholarship to cooperate with MIT (Prof. Yang Shao Horn, Dept. of Mechanical Engineering) in the research field of fuel cells. In November 2015, he was awarded by UoWM a prize for Innovative Research in 2012-2014. Since 2016, he is the chairman of the Cluster of Bioenergy and Environment in Western Macedonia (CluBE) and since 2020 he is associate editor of the "Hydrogen" journal of MDPI Editions. Based on his activities in hydrogen production and fuel cells, he was appointed by the Greek Ministry of Development as a deputy coordinator of the Fuel Cells for Stationary & Mobile Applications working group of the Hellenic Hydrogen Platform and as a representative in one of the fuel cell actions operating at COST. Finally, he was the Vice-Chairman of the Hellenic Society of Hydrogen Technologies and ex-Chairman of the Hellenic Association of Chemical Engineers.

BRIEF PRESENTATION

Publications in Refereed Journals	**76**
Publications in International Conferences' Proceedings	**26**
Publications in National Conferences' Proceedings	**78**
Patents	**2**
Chapters in Books	**2**
Translation in Greek of Scientific Text Books	**2**
Presentations in International Conferences	**76**
Presentations in National Conferences	**82**

Citations (excluding self-citations)	**> 1300**
H-index	**20**
Doctoral Theses Supervision	**7 (completed), 3 (running)**
Invited Presentations	**9**
Reviewer in Scientific International Journals	**33**
Reviewer in Research Funding Agencies	**12**

HIGHER EDUCATION

1995 – 1999 PhD in Chemical Engineering, Department of Chemical Engineering, AUTH
PhD Thesis: *"Study of catalytic oxidation and hydrogenation reactions with the aid of oxygen and proton conducting solid electrolyte membrane reactors"*

1996 – 1998 Master in Business Administration, University of Macedonia
Master Thesis: *"The method of Hazard Analysis of Critical Control Point (HACCP) and its implementation in the Greek food industry"*

1989 – 1995 Diploma in Chemical Engineering, Department of Chemical Engineering, AUTH
Thesis: *"Study of the electrochemical activation of methane over a perovskite-type oxide catalyst"*

APPOINTMENTS

2018 - Professor, Department of Mechanical Engineering, UoWM
2016 – 2019 Vice Rector of Financial Planning, Infrastructure and Development
2016 – 2019 Chairman of the Cluster of Bioenergy and Environment in Western Macedonia (CluBE)
2015 – 2016 Chairman of the Department of Environmental Engineering, UoWM
2013 – 2018 Associate Professor, Department of Mechanical Engineering, UoWM
2011 – 2014 Adjunct Professor, International Hellenic University
2009 – Supervision of Master Theses, Hellenic Open University
2011 (01-03) Fulbright Visiting Professor at MIT (Dept. Mechanical Engineering)
2008 – 2013 Assistant Professor, Department of Mechanical Engineering, UoWM
2003 – 2008 Lecturer, Department of Mechanical Engineering, UoWM
2003 – Research Associate, CPERI/CERTH
1999 – 2003 Post-Doc Researcher, CPERI/CERTH
1999 – 2003 Visiting Lecturer, Dept. of Pollution Control Technologies, TEI of West Macedonia
1999 – 2003 Post-Graduate Researcher, CPERI/CERTH

TEACHING ACTIVITIES

General Chemistry, Environmental Technology, Unit Operations, Chemical Reaction Engineering, Environmental Chemistry, Special Issues on Pollution Control Technologies, Special Issues on Energy Conversion Technologies, Heterogeneous Catalysis, Introduction to Energy Technology Systems (Master level), Oil and Gas Engineering (Master level), Control Pollution Technologies in Power Generation (Master level), Supervisor in Diploma, Master and Doctoral Theses

Doctoral Theses

1. "The use of solid electrolyte membrane reactors for the optimization of industrially important chemical reactions", **K. Kalimeri**, UoWM, Greece (completed on 27-11-2007).
2. "Selective catalytic reduction of nitrogen oxides by hydrocarbons in conventional catalytic reactors and in alkali conducting solid electrolyte membrane reactors", **G. Pekridis**, UoWM, Greece (completed on 04-05-2009).
3. "Novel anodic composites for direct hydrocarbon fuel cells", **N. Kaklidis**, UoWM, Greece (completed on 06-05-2011).
4. "Simulation of transport phenomena in fuel cells", **E. Vakouftsi**, UoWM, Greece (completed on 12-07-2011).
5. "Development of high temperature proton conducting solid oxide fuel cells for the co-generation of electricity, thermal power and useful chemical products", **Z. Ioakeimidis**, UoWM, Greece (completed on 22-10-2015).
6. "Hydrogen production from H_2S decomposition in a micro-structured H^+-conducting solid oxide membrane reactor", **Tz. Kraia**, UoWM, Greece (completed on 06/2017).
7. "Development of efficient structure and/or surface promoted catalytic systems, for the simultaneous abatement of nitrous and nitric oxides (N_2O, NOx)", **E. Papista**, UoWM, Greece (completed on 05/2018)

8. “Direct electrical conversion of solid fossil and bio-fuels in direct carbon fuel cells aided with an internal catalytic gasification process”, **A. Lambropoulos**, UoWM (started on 2016).
9. “Urban pollution and biological effects - Effect of environmental derivatives on standard biological systems”, **I. Tzagaroulaki**, UoWM (started on 2017).
10. “Development and evaluation on nano-catalysts for the efficient conversion of CO_2 to chemicals and fuels”, **G. Varvoutis**, UoWM (started on 2018).
11. “Development of computational software for the life cycle analysis of emerged energy technologies in the forthcoming post-coal era”, **G. Kardaras**, UoWM (started on 2019)

RESEARCH INTERESTS

- Physical-chemistry behaviour of surfaces and interfaces; Catalysis and role of promoters.
- Chemical kinetics and thermodynamics; Reactor engineering; Chemical processes engineering.
- Solid state electrochemistry; Electro-catalysis; Electrochemical Promotion, Electrodics.
- Biomass energy conversion technologies
- Fuel cells (physical chemistry, thermodynamics, mathematical modelling).
- Analysis and design of novel fuel cell and electrochemical reactor concepts.
- Environmental pollution control, Environmental engineering, Environmental catalysis.
- Hydrogen production/recovery and use.
- Natural gas, biofuels and hydrocarbons valorization.
- CO_2 utilization approaches.
- Efficient energy storage of intermittent RES power to chemical energy

RESEARCH ACHIEVEMENTS

Prof. Marnellos has been involved in a number of significant research contributions. Specifically, his research efforts have led to the following achievements:

1. **Electrochemical aided shift of equilibrium limited reactions** – Prof. Marnellos first reported [Marnellos and Stoukides, Science 282 (1998) 98; Marnellos et al., J. Catal. 193 (2000) 80; Marnellos et al., Sol. St. Ionics 97 (1997) 375; etc] a new method based on H^+ conducting solid electrolyte membrane reactors (SEMRs) to synthesize ammonia at atmospheric pressure bypassing the thermodynamic restrictions that limit equilibrium conversion. This pioneering work has opened new orisons for various similar chemical processes (CH_3OH synthesis) as well as for the un-resolved problems arising during nitrogen fixation.
2. **Electrochemical promotion of reactions** – Prof. Marnellos is still working on the electrochemical promotion of various industrially important chemical reactions (e.g. hydrocarbons partial oxidation/reforming and selective catalytic reduction of nitrogen oxides) in both O^{2-} and H^+ conducting SEMRs [Tsiakaras et al., Appl. Catal. A 169 (1998) 249; Pekridis et al., Catal. Today 127 (2007) 337; etc]. Especially, in the case of H^+-SEMRs, pure H_2 can be produced and recovered in a single device minimizing the downstream treatment costs.
3. **NO_X and N_2O abatement using water as a hydrogen source** – Prof. Marnellos developed a new concept to abate NO_X and N_2O to N_2 using a double chamber H^+-SEMR steam electrolysis cell [Kalimeri et al. Sol. St. Ionics 181 (2010) 223]. This advantageous process does not require any storage or usage of extra reducing agent since the easily stored and abundant H_2O is used as a H_2 source. Moreover, as a side effect of steam electrolysis, pure O_2 can be produced on the anode.
4. **Simultaneous reduction of NO_X and N_2O by hydrocarbons in excess oxygen** – A dual bed catalytic reactor consisting of In/γ-Al_2O_3 and Ru/γ-Al_2O_3 was demonstrated [Marnellos et al., Ind. Eng Chem. Res. 43 (2004) 2413], in which high NO_X (70%) and N_2O (90%) conversions were achieved even under realistic conditions for long term operation, leading to new aspects for nitrogen oxides and hydrocarbons emissions reduction in the flue gases of power plants and automotive exhausts.
5. **Classical vs electrochemical catalytic promotion** – The well-defined rules of catalyst’s promotion described by Vayenas et al. (“Electrochemical Promotion of Catalysis”, Kluwer Eds. 2001) and the similarities existing between classical and electrochemical promotion, were verified also for N_2O reduction reaction in potassium promoted Pd catalysts and electrodes [Pekridis et al., Sol. St. Ionics, 192 (2011) 653], where the promotional effects were attributed to the changes in the strength of reactants’ chemisorptive bonds.
6. **Direct hydro-carbon SOFCs** – Research activities were also devoted to the development of multi-component anodic composites based on Cu-M/CeO_2 (M: a second metal), for direct hydrocarbon and fossil or bio-based carbon fed SOFCs. Promising results have been obtained in the case of carbon fed O^{2-} -SOFCs, where power outputs similar to H_2 fed SOFCs were achieved [Konsolakis et al., RSC Adv, 4 (2014) 18792; Chin. J. Catal., 36 (2015) 509]. Efforts are currently directed toward solid biofuel aided steam electrolysis in SOECs.

7. **SOFC integration in biomass thermochemical processes** – STAR FUEL was one of the first teams that reported the integration of SOFCs to thermochemical and biological biomass conversion processes, where power can be produced at higher efficiencies exceeding those obtained in conventional thermal cycles [Athanasiou et al., Intl. Hydrogen Energy 32 (2007) 337].
8. **Hydrogen production from H_2S/H_2O mixtures –** Prof. Marnellos and his team were first reported a novel process based on micro-structured proton conducting ceramic membrane reactors to simultaneously electrolyze H_2S and H_2O to pure H_2 in a single device. This concept can be implemented in Black Sea waters and geothermal springs and it can be considered as an efficient energy storage approach if powered by RES [Ipsakis et al., Intl. J. Hydrogen Energy, 40 (2015) 7530; Kraia et al., Sol. St. Ionics, 306 (2017) 31; Ipsakis et al., Renewable Energy, 125 (2018) 806].
9. **Structure/surface chemistry-performance correlation** – Significant advancements are expected to be achieved when the activity of catalysts/electrodes is correlated with their structure and surface chemistry. With the aid of various advanced surface and structure characterization techniques this route has been followed by the group of Prof. Marnellos in many applications [Al-Musa et al., Intl. J. Hydrogen Energy, 39 (2014) 19541; Konsolakis et al., Catal. Sci. Tech., 5 (2015) 3714].
10. **Development of active nano-catalysts for CO_2 hydrogenation toward added value chemicals and fuels** – Recent efforts were targeted to the development of active transition metal catalysts [Diez-Ramirez et al., J. CO2 Utilization, 21 (2017), 562] and Au nanocatalysts [Vourros et al., J. CO2 Utilization, 19 (2017) 247; Kyriakou et al., Catal. Commun., 98 (2017), 52] for the effective activation of CO_2 by its hydrogenation with renewable hydrogen toward olefins, methanol, methane and CO generation.
11. **Electrochemical reactor for pure H_2 generation from coal** – A new concept to generate pure hydrogen in a single device by using cheap and abundant solid fuels was introduced [Kyriakou et al., J. Membrane Science, 553 (2018) 163]. By using a proton conducting electrochemical membrane reactor, pure hydrogen is generated at the anode compartment through coal steam gasification and is simultaneously separated to cathode.

LIST OF PUBLICATIONS

A. Publications in Scientific Peer-Reviewed Journals

A1. "Electrode polarization and electrical properties of the $La_{0.6}Sr_{0.4}Co_{0.8}Fe_{0.2}O_{3-a}$ / Yttria Stabilized Zirconia interface: Effect of gas phase composition and temperature", P. Tsiakaras, G. Marnellos, C. Athanasiou, M. Stoukides, J.E. ten Elshof, H.J.M. Bouwmeester and H. Verweij. *Solid State Ionics, **86-88**, 1451-1456 (1996).*

A2. "Modelling of solid oxide proton conducting reactor-cells: Thermodynamics and kinetics", G. Marnellos, C. Athanasiou, P. Tsiakaras, and M. Stoukides. *Ionics, **2**, 412-420 (1996).*

A3. "Catalytic and electrocatalytic oxidation of methane on palladium electrodes in a solid electrolyte cell", C. Athanasiou, G. Marnellos, P. Tsiakaras and M. Stoukides. *Ionics*, ***2***, 353-360 (1996).

A4. "The use of proton conducting solid electrolytes for improved performance of hydro- and dehydrogenation reactors", G. Marnellos, O. Sanopoulou, A. Rizou, and M. Stoukides. *Solid State Ionics, **97**, 375-383 (1997).*

A5. "Catalytic and electrocatalytic oxidation of ethylene on a perovskite electrode in a solid electrolyte cell", G. Marnellos, C. Athanasiou, T. Angelidis, and M. Stoukides. *Ionics, **3**, 96-103 (1997).*

A6. "Methane activation on a $La_{0.6}Sr_{0.4}Co_{0.8}Fe_{0.2}O_{3-a}$ perovskite. Catalytic and electrocatalytic results", C. Athanasiou, G. Marnellos, J.E. ten Elshof, P. Tsiakaras, H.J.M. Bouwmeester, and M. Stoukides. *Ionics, **3**, 128-133 (1997).*

A7. "Methane activation on a $La_{0.6}Sr_{0.4}Co_{0.8}Fe_{0.2}O_{3-a}$ perovskite. Catalytic and electrocatalytic results", P. Tsiakaras, C. Athanasiou, G. Marnellos, M. Stoukides, J.E. ten Elshof, and H.J.M. Bouwmeester. *Applied Catalysis A: General, **169**, 249-261 (1998).*

A8. "Ammonia synthesis at atmospheric pressure", G. Marnellos, and M. Stoukides. *Science, **282**, 98-100 (1998).*

A9. "Evaluation and use of the $Pd/SrCe_{0.95}Yb_{0.05}O_3/Pd$ electrochemical reactor for equilibrium-limited hydrogenation reactions", G. Marnellos, C. Athanasiou, and M. Stoukides. *Ionics, **4**, 141-147 (1998).*

A10. "Polarization studies in the $Pd/SrCe_{0.95}Yb_{0.05}O_3/Pd$ proton conducting solid electrolyte cell", G. Marnellos, A. Kyriakou, F. Flouros, T. Angelidis and M. Stoukides. *Solid State Ionics, **125**, 279-284 (1999).*

A11. "Hazard Analysis Critical Control Point (HACCP): Implementation in the Greek Industry", G. Marnellos and G. Tsiotras. *Quality Reliability Engineering International, **15**, 385-396 (1999).*

A12. "Synthesis of ammonia at atmospheric pressure with the use of solid state proton conductors", G. Marnellos, S. Zisekas and M. Stoukides. *Journal of Catalysis, **193**, 80-87 (2000).*

A13. "Electrocatalytic synthesis of ammonia at atmospheric pressure", G. Marnellos, G. Karagiannakis, S. Zisekas and M. Stoukides. *Studies in Surface Science and Catalysis, **300A**, pp. 413-418, Elsevier, (2000).*

A14. "Study of ammonia decomposition in a proton conducting solid electrolyte cell", S. Zisekas, G. Karagiannakis, G. Marnellos and M. Stoukides. *Ionics, **8**, 118-122, (2002).*

A15. "Catalytic and electrocatalytic oxidation of CO on a Fe electrode in a solid electrolyte cell", G. Marnellos, S. Zisekas and A. Kungolos. *Applied Catalysis B: Environmental, **42(3)**, 225-236, (2002).*

Lecturer, Dept. Mechanical Engineering, UoWM

A16. "Simultaneous N_2O and NO reduction over carbon supported catalysts", F. Concalves, G.E. Marnellos, E.A. Efthimiadis and J.L. Figueiredo. *Reaction Kinetics and Catalysis Letters,* ***80****, 153-159 (2003).*

A17. "Effect of SO_2 and H_2O on the N_2O decomposition in the presence of O_2", G.E. Marnellos, E.A. Efthimiadis and I.A. Vasalos. *Applied Catalysis B: Environmental,* ***46(3)****, 523-539 (2003).*

A18. "Mechanistic and kinetic analysis of the NO_X selective catalytic reduction by hydrocarbons in excess O_2 over In/Al_2O_3 in the presence of SO_2 and H_2O", G.E. Marnellos, E.A. Efthimiadis and I.A. Vasalos. *Applied Catalysis B: Environmental,* ***48(1)****, 1-15 (2004).*

A19. "Simultaneous catalytic reduction of NO_X and N_2O in a In/Al_2O_3 – Ru/Al_2O_3 dual bed reactor in the presence of SO_2 and H_2O", G.E. Marnellos, E.A. Efthimiadis and I.A. Vasalos. *Industrial & Engineering Chemistry Research,* ***43(10)****, 2413-2419 (2004).*

A20. "Kinetic and mechanistic studies of NO_X reduction over In/Al_2O_3 and N_2O decomposition over Ru/Al_2O_3", G.E. Marnellos, M.P. Antoniou, E.A. Efthimiadis and I.A. Vasalos. *Water, Air & Soil Pollution: Focus (WAFO),* ***4(4-5)****, 31-43 (2004).*

A21. "Catalytic studies in electrochemical membrane reactors", G. Marnellos and M. Stoukides. *Solid State Ionics,* ***175(1-4)****, 597-603 (2004).*

A22. "Effect of palladium oxidation state on the kinetics and mechanism of the charge transfer reaction taking place at the Pd/YSZ interface", K. Kalimeri, G. Pekridis, S. Vartzoka, C. Athanassiou and G. Marnellos. *Solid State Ionics,* ***177(11-12)****, 979-988 (2006).*

A23. "Hydrogen production in solid electrolyte membrane reactors", G. Pekridis, N. Kaklidis, K. Kalimeri, S. Vartzoka, C. Athanassiou and G. Marnellos. *International Journal of Hydrogen Energy,* ***32(1)****, 38-54 (2007).*

A24. "From biomass to electricity through integrated gasification/SOFC system-optimization and energy balance", C. Athanasiou, F. Coutelieris, E. Vakouftsi, V. Skoulou, E. Antonakou, G. Marnellos and A. Zabaniotou. *International Journal of Hydrogen Energy,* ***32(3)****, 337-342 (2007).*

A25. "Electrode polarization measurements in the $Fe|SrCe_{0,95}Yb_{0,05}O_{2,975}|Au$ proton conducting solid electrolyte cell", G. Pekridis, K. Kalimeri, N. Kaklidis, C. Athanasiou and G.E. Marnellos. *Solid State Ionics,* ***178(7-10)****, 649-656 (2007).*

A26. "Study of the reverse water gas shift reaction (RWGS) reaction over Pt in a solid oxide fuel cell (SOFC) operating under open and closed-circuit conditions", G. Pekridis, K. Kalimeri, N. Kaklidis, E. Vakouftsi, E.F. Iliopoulou, C. Athanasiou and G.E. Marnellos. *Catalysis Today,* ***127****, 337-346 (2007).*

Assistant Professor, Dept. of Mechanical Engineering, UoWM

A27. "Modelling of flow and transport processes occurred in a typical Polymer Electrolyte Membrane Fuel Cell (PEMFC)", E. Vakouftsi, G.E. Marnellos, C. Athanasiou, F.A. Coutelieris. *Defect and Diffusion Forum,* ***273-276****, 87-92 (2008).*

A28. "Efficiencies of olive kernel gasification combined cycle with Solid Oxide Fuel Cells (SOFC)", C. Athanasiou, E. Vakouftsi, F.A. Coutelieris, G. Marnellos, A. Zampaniotou. *Chemical Engineering Journal,* ***149(1-3)****, 183-190 (2009).*

A29. "Effect of pretreatment and regeneration conditions of Ru/Al_2O_3 catalysts for N_2O decomposition and/or reduction in O_2 rich atmospheres and in the presence of NO_X, SO_2 and H_2O", V.G. Komvokis, G.E. Marnellos, I.A. Vasalos and K.S. Triantifyllidis. *Applied Catalysis B: Environmental,* ***89(3-4)****, 627-634 (2009).*

A30. "N_2O abatement over γ-Al_2O_3 supported catalysts: Effect of reducing agent and active phase nature", G. Pekridis, C. Athanasiou, M. Konsolakis, I.V. Yentekakis and G.E. Marnellos. *Topics in Catalysis,* ***52(13)****, 1880-1887 (2009).*

A31. "Electro-reduction of nitrogen oxides using steam electrolysis in a proton conducting solid electrolyte membrane reactor (H^+-SEMR)", K. Kalimeri, C. Athanasiou and G.E. Marnellos. *Solid State Ionics,* ***181(3-4)****, 223-229 (2010).*

A32. "Theoretical investigation of the relation between the output of a methane internal reforming SOFC and the composition of the feedstream", E. Vakouftsi, C. Athanasiou, G. Marnellos and F.A. Coutelieris. *Defect and Diffusion Forum,* ***297-301****, 838-843 (2010).*

A33. "Surface and catalytic elucidation of Rh/γ-Al_2O_3 catalysts during NO reduction by C_3H_8 in the presence of excess O_2, H_2O and SO_2", G. Pekridis, N. Kaklidis, V. Komvokis, C. Athanasiou, M. Konsolakis, I.V. Yentekakis and G.E. Marnellos. *The Journal of Physical Chemistry A,* ***114(11)*** *3969-3980 (2010).*

A34. "A comparison between electrochemical and conventional catalyst promotion: the case of N_2O reduction by alkanes or alkenes over K-modified Pd Catalysts", G. Pekridis, N. Kaklidis, M. Konsolakis, C. Athanasiou, I.V. Yentekakis and G.E. Marnellos. *Solid State Ionics,* ***192(1)****, 653-658 (2011).*

A35. "A detailed model for transport processes in a methane fed planar SOFC", E. Vakouftsi, G.E. Marnellos, C. Athanasiou and F.A. Coutelieris. *Chemical Engineering Research and Design*, ***89(2)****, 224-229 (2011).*

A36. "CFD modeling of a biogas fuelled SOFC", E. Vakouftsi, G.E. Marnellos, C. Athanasiou and F. Coutelieris. *Solid State Ionics,* ***192(1)****, 458-463 (2011).*

A37. "Direct electro-oxidation of iso-octane in a solid electrolyte fuel cell", N. Kaklidis, G. Pekridis, C. Athanasiou and G.E. Marnellos. *Solid State Ionics,* ***192(1)****, 435-443 (2011).*
A38. "Correlation of surface characteristics with catalytic performance of potassium promoted Pd/Al_2O_3 catalysts: The case of N_2O reduction by alkanes or alkenes", G. Pekridis, N. Kaklidis, M. Konsolakis, E.F. Iliopoulou, I.V. Yentekakis and G.E. Marnellos. *Topics in Catalysis,* ***54(16-18)****, 1135-1142 (2011).*
A39. "Acetic acid internal reforming in a solid oxide fuel cell reactor using $Cu\text{-}CeO_2$ anodic composites", N. Kaklidis, V. Besikiotis, G. Pekridis, G.E. Marnellos. *International Journal of Hydrogen Energy,* ***37(21)****, 16722-16732 (2012).*
A40. "Direct electro-oxidation of acetic acid in a solid oxide fuel cell", N. Kaklidis, G. Pekridis, V. Besikiotis, C. Athanasiou, G.E. Marnellos. *Solid State Ionics,* ***225****, 398-407 (2012).*
A41. "Insights into the role of SO_2 and H_2O on the surface characteristics and de-N_2O efficiency of Pd/Al_2O_3 catalysts during N_2O decomposition in the presence of CH_4 and O_2 excess", M. Konsolakis, I.V. Yentekakis, G. Pekridis, N. Kaklidis, A.C. Psarras, G.E. Marnellos. *Applied Catalysis B: Environmental,* ***138-139****, 191-198 (2013).*
A42. "Iso-Octane internal reforming in a solid oxide fuel cell using Co/CeO_2 as anode", A. Al-Musa, V. Kyriakou, M. Al-Saleh, R. Al-Shehri, N. Kaklidis, G.E. Marnellos. *ECS Transctions,* ***58(3)****, 131-143 (2013).*

Associate Professor, Dept. of Mechanical Engineering, UoWM
A43. "Hydrogen production by iso-octane steam reforming over Cu catalysts supported on Rare Earth Oxides (REOs)", A. Al-Musa, M. Al-Saleh, Z. Ioakimidis, M. Ouzounidou, I.V. Yentekakis, M. Konsolakis, G.E. Marnellos. *International Journal of Hydrogen Energy,* ***39(3)****, 1350-1363 (2014).*
A44. "Effect of carbon type on the performance of a Direct or Hybrid Carbon Solid Oxide Fuel Cell", N. Kaklidis, V. Kyriakou, I. Garagounis, A. Arenillas, J.A. Menendez, G.E. Marnellos, M. Konsolakis. Royal Society of Chemistry Advances, ***4(36),*** *18792 - 18800 (2014).*
A45. "Steam reforming of iso-octane toward hydrogen production over mono- and bi-metallic $Cu\text{-}Co/CeO_2$ catalysts: Structure-activity correlations", A.A. Al-Musa, Z.S. Ioakeimidis, M.S. Al- Saleh, A. Al-Zahrany, G.E. Marnellos, M. Konsolakis. *International Journal of Hydrogen Energy,* ***39(34)****, 19541-19554 (2014).*
A46. "An electrocatalytic membrane-assisted process for hydrogen production from H_2S in Black Sea: Preliminary results", D. Ipsakis, Tz. Kraia, G.E. Marnellos, M. Ouzounidou, S. Voutetakis, R. Dittmeyer, A. Dubbe, K. Haas-Santo, M. Konsolakis, H.E. Figen, N.O. Güldal, S.Z. Baykara. *International Journal of Hydrogen Energy,* ***40(24)****, 7530-7538 (2015).*
A47. "Carbon to electricity in a solid oxide fuel cell combined with an internal catalytic gasification process", M. Konsolakis, G.E. Marnellos, A. A-Musa, N. Kaklidis, I. Garagounis, V. Kyriakou. *Chinese Journal of Catalysis* ***36****, 509-516 (2015).*
A48. "Direct utilization of Lignite coal in a $Co\text{-}CeO_2$/YSZ/Ag solid oxide fuel cell", N. Kaklidis, I. Garagounis, V. Kyriakou, V. Besikiotis, A. Arenillas, J.A. Menéndez, G.E. Marnellos, M. Konsolakis. *International Journal of Hydrogen Energy,* ***40****, 14353-13363 (2015).*
A49. "Nitrous oxide decomposition over Al_2O_3 supported noble metals (Pt, Pt, Ir): Effect of metal loading and feed composition", E. Pachatouridou, E. Papista, E.F. Iliopoulou, A. Delimitis, G. Goula, I.V. Yentekakis, G.E. Marnellos, M. Konsolakis. *Journal of Environmental Chemical Engineering,* ***3(2)****, 815-821 (2015).*
A50. "Effect of preparation method on the solid state properties and the deN_2O performance of $CuO\text{-}CeO_2$ oxides", M. Konsolakis, S.A.C. Carabineiro, E. Papista, G.E. Marnellos, P.B. Tavares, J. Agostihno Moreira, Y. Romaguera-Barcelay, J.L. Figueiredo. *Catalysis Science & Technology,* ***5****, 3714-3727 (2015).*
A51. "Electro-catalytic and fuel cell studies in an internal reforming iso-octane fed SOFC using Cu/CeO_2 composites as anodic electrodes", A. Al-Musa, M. Al-Saleh, A. Al-Zahrani, N. Kaklidis, G.E. Marnellos. *ECS Transctions,* ***66(3)****, 125-136 (2015).*
A52. "Assessment of biochar as feedstock in a direct carbon solid oxide fuel cell", M. Konsolakis, N. Kaklidis, G.E. Marnellos, D. Zaharaki, K. Komnitsas. *Royal Society of Chemistry Advances,* ***5****, 73399-73409 (2015).*
A53. "Iso-octane internal reforming in a solid oxide cell reactor", A. Al-Musa, N. Kaklidis, M. Al-Saleh, A. Al-Zahrani, V. Kyriakou, G.E. Marnellos. Solid State Ionics, in press (2016).
A54. "Effect of Fuel Thermal Pretreament on The Electrochemical Performance of a Direct Lignite Coal Fuel Cell", N. Kaklidis, V. Kyriakou, G.E. Marnellos, R. Strandbakke, A. Arenillas, J.A. Menéndez, M. Konsolakis. Solid State Ionics, in press (2016).
A55. "N_2O decomposition over ceria-promoted Ir/Al_2O_3 catalysts: The role of ceria", E. Pachatouridou, E. Papista, A. Delimitis, M.A. Vasiliades, A.M. Efstathiou, M.D. Amiridis, O.S. Alexeev, D. Bloom, G.E. Marnellos, M. Konsolakis and E. Iliopoulou. *Applied Catalysis B: Environmental,* ***187****, 259-268 (2016).*
A56. "A comparative study of the H2-assisted selective catalytic reduction of nitric oxide by propene over noble metal (Pt, Pd, Ir)/γ-Al2O3 catalysts", M.A. Goula, N.D. Charisiou, K.N. Papageridis, A. Delimitis, E. Papista, E. Pachatouridou, E.F. Iliopoulou, G.E. Marnellos, M. Konsolakis, I.V. Yentekakis. *Journal of Environmental Chemical Engineering,* ***4(2)****, 1629-1641 (2016).*

A57. "Hydrogen Production by Ethanol Steam Reforming (ESR) over CeO2 Supported Transition Metal (Fe, Co, Ni, Cu) Catalysts: Insight into the Structure-Activity Relationship", M. Konsolakis, Z. Ioakimidis, Tz. Kraia, G.E. Marnellos. *Catalysts **6(3)**, 39-66 (2016).*

A58. "Ethyl acetate abatement on copper catalysts supported on ceria doped with rare earth oxides", S.A.C. Carabineiro, M. Konsolakis, G.E. Marnellos, M. Faizan Asad, O.S.G.P. Soares, P.B. Tavares, M.F.R. Pereira, J.J.M. Orfao, J.L. Figueiredo. *Molecules, **21**, 644 (2016).*

A59. "Effect of alkali promoters (K) on nitrous oxide abatement over Ir/Al2O3 catalysts", E. Papista, E. Pachatouridou, M.A. Goula, G.E. Marnellos, E. Iliopoulou, M. Konsolakis, I.V. Yentekakis. *Topics in Catalysis, **59(10)**, 1020-1027 (2016).*

A60. "Volatile organic compounds abatement over copper-based catalysts: Effect of support", M. Konsolakis, S.A.C. Carabineiro, G.E. Marnellos, M.F. Asad, O.S.G.P. Soares, M.F.R. Pereira, J.J.M Orfao, J.L. Figueiredo. *Inorganica Chimica Acta, **455(Part 2)**, 473-482 (2017).*

A61. "Effect of cobalt loading on the solid state properties and ethyl acetate oxidation performance of cobalt-cerium mixed oxides", M. Konsolakis, S.A.C. Carabineiro, G.E. Marnellos, M.F. Asad, O.S.G.P. Soares, M.F.R. Pereira, J.J.M. Órfão, J.L. Figueiredo. *Journal of Colloid & Interface Science, **496**, 141–149 (2017).*

A62. "Catalytic decomposition of N_2O on inorganic oxides: Effect of doping with Au nanoparticles", S.A.C. Carabineiro, E. Papista, G.E. Marnellos, P.B. Tavares, F.J. Maldonado-Hódar, M. Konsolakis. *Journal of Molecular Catalysis A: Chemical, **436**, 78-79 (2017).*

A63. "Carbon Dioxide Hydrogenation over Supported Au nanoparticles: Effect of the support", A. Vourros, I. Garagounis, V. Kyriakou, S.A.C. Carabineiro, F.J. Maldonado-Hódar, G.E. Marnellos, M. Konsolakis. *Journal of CO_2 Utilization, **19**, 247-256 (2017).*

A64. "Electrochemical performance of Co_3O_4/CeO_2 electrodes in H_2S/H_2O atmospheres in a proton-conducting ceramic symmetrical cell with $BaZr_{0.7}Ce_{0.2}Y_{0.1}O_3$ solid electrolyte", Tz. Kraia, S. Wachowski, E. Vøllestad, R. Strandbakke, M. Konsolakis, T. Norby, G.E. Marnellos. *Solid State Ionics, **306**, 31-37 (2017).*

A65. "Highly Active and Stable TiO_2-Supported Au Nanoparticles for CO_2 Reduction", V. Kyriakou, A. Vourros, I. Garagounis, S.A.C. Carabineiro, F.J. Maldonado-Hódar, G.E. Marnellos, M. Konsolakis. *Catalysis Communications, **98**, 52-56 (2017).*

A66. "Effect of support nature on the Cobalt-catalyzed CO_2 hydrogenation", J. Díez-Ramírez, P. Sánchez, V. Kyriakou, S. Zafeiratos, G.E. Marnellos, M. Konsolakis, F. Dorado. *Journal of CO_2 Utilization, **21**, 562-571 (2017).*

Professor, Dept. of Mechanical Engineering, UoWM

A67. "The combined impact of carbon type and catalyst-aided gasification process on the performance of a Direct Carbon Solid Oxide Fuel Cell", M. Konsolakis, N. Kaklidis, V. Kyriakou, I. Garagounis, Tz. Kraia, A. Arenillas, J.A. Menendez, R. Strandbakke, G.E. Marnellos. *Solid State Ionics, **317**, 268-275 (2018).*

A68. "A protonic ceramic membrane reactor for the production of hydrogen from coal steam gasification", V. Kyriakou, I. Garagounis, A. Vourros, G.E. Marnellos, M. Stoukides. *Journal of Membrane Science, **553**, 163-170 (2018).*

A69. "Remediation of Black Sea ecosystem and pure H_2 generation via H_2S-H_2O co-electrolysis in a proton-conducting membrane cell stack reactor: A feasibility study of the integrated and autonomous approach", D. Ipsakis, Tz. Kraia, M. Konsolakis, G.E. Marnellos. *Renewable Energy, **125**, 806-818 (2018).*

A70. "Electrochemical conversion of CO_2 over microchanneled cathode supports of solid oxide electrolysis cells", L. Yu, J. Wang, Z. Ye, X. Hu, C. Buckley, G. Marnellos, D. Dong. *Journal of CO2 Utilization, **26**, 179-183 (2018).*

A71. "Effect of NiO/YSZ cathode support pore structure on CO2 electrolysis via solid oxide electrolysis cells", T. Wang, J. Wang, L. Yu, Z. Ye, X. Hu, G.E. Marnellos, D. Dong. *Journal of the European Ceramic Society, **36(15)**, 5051-5057 (2018).*

A72. "Catalytic CeO_2 washcoat over microchanneled supporting cathodes of solid oxide electrolysis cells for efficient and stable CO_2 reduction", Jingjing Wang, Tengpeng Wang, Libo Yu, Tao Wei, Xun Hu, Zhengmao Ye, Zhi Wang, C.E. Buckley, Jianfeng Yao, George E. Marnellos, Dehua Dong. *Journal of Power Sources, **412**, 344-349 (2019).*

A73. "Hydrogen production by H_2S decomposition over ceria supported transition metal (Co, Ni, Fe and Cu) catalysts", Tz. Kraia, N. Kaklidis, M. Konsolakis, G.E. Marnellos. *International Journal of Hydrogen Energy, **44(20)**, 9753-9762 (2019).*

A74. "The synergistic catalyst-carbonates effect on the direct bituminous coal fuel cell performance", N. Kaklidis, R. Strandbakke, A. Arenillas, J.A. Menendez, M. Konsolakis, G.E. Marnellos. *International Journal of Hydrogen Energy, **44(20)**, 10033-10042 (2019).*

A75. "Demonstration of hydrogen production in a hybrid lignite-assisted solid oxide electrolysis cell", C. Athanasiou, I. Garagounis, V. Kyriakou, A. Vourros, G.E. Marnellos, M. Stoukides. *International Journal of Hydrogen Energy, **44**, 22770-22779 (2019).*

A76. "CO_2 hydrogenation over nanoceria-supported transition metal catalysts: Role of ceria morphology (nanorods vs. nanocubes) and active phase nature (Co vs. Cu)", Michalis Konsolakis, Maria Lykaki, Sofia Stefa, Sónia A.C. Carabineiro, Georgios Varvoutis, Eleni Papista, Georgios E. Marnellos. *Nanomaterials, **9**, 1739 (2019).*

B. Publications in International Conference Proceedings

B1. "Catalytic behavior of $La_{0.6}Sr_{0.4}Co_{0.8}Fe_{0.2}O_{3-a}$ perovskite-type oxide during methane combustion" C. Athanasiou, G. Marnellos and P. Tsiakaras. *Proc. 5th Intl. Symposium on SOFC, Aachen Germany, June, 983-992, 1997.*

B2. "Kinetic and mechanistic studies of NO_X reduction over In/Al_2O_3 and N_2O decomposition over Ru/Al_2O_3 in the presence of C_3H_6", G.E. Marnellos, M.P. Antoniou, E.A. Efthimiadis and I.A. Vasalos. *Proc. 6th International Conference on Protection and Restoration of the Environment, Skiathos Island, Greece, July 1-5, 1073-1080, 2002.*

B3. "Electrochemical promotion of CO oxidation on a Fe electrode", G.E. Marnellos, S. Zisekas and A. Kungolos. *Proc. 6th International Conference on Protection and Restoration of the Environment, Skiathos Island, Greece, July 1-5, 1081-1088, 2002.*

B4. "The catalytic conversion of NO and N_2O to N_2 in the presence of H_2O and SO_2 over Ru/Al_2O_3–In/Al_2O_3", E.A. Efthimiadis, G.E. Marnellos, S.C. Christophorou and I.A. Vasalos. *Proc. 17th International Symposium on Chemical Reaction Engineering, Hong Kong, China, August 25-28, 2002.*

Lecturer, Dept. Mechanical Engineering, UoWM

B5. "Electrochemical oxidation of methane over an iron electrode in a solid electrolyte cell", A. Kungolos, C. Athanasiou, K. Kalimeri, N. Kyratzis and G. Marnellos. *Proc. 7th International Conference on Protection and Restoration of the Environment, Myconos Island, Greece, June 28 -July 1, 2004.*

B6. "Hydrogen production from partial oxidation of CH_4 in an YSZ O^{2-} conducting membrane reactor", C. Athanasiou, G. Marnellos, E. Antonakou, E. Patziatzi, A. Bousis, N. Kyratzis and P. Tsiakaras. *Proc. 7th International Conference on Protection and Restoration of the Environment, Myconos Island, Greece, June 28 -July 1, 2004.*

B7. "Optimization and Energy Balance of the Biomass Gasification - Solid Oxide Fuel Cell Integrated Process", C. Athanasiou, F. Koutelieris, E. Vakouftsi, V. Skoulou, E. Antonakou, G. Marnellos and A. Zabaniotou. *Proc. 2nd Exergy, Energy and Environment Symposium (IEEES-2), Kos - Greece, 3 - 7 July 2005.*

B8. "Feasibility Study and Market Analysis of Biodiesel Production in Greece", C. Athanasiou, E. Antonakou and G. Marnellos. *Proc. 1st Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE 2007), Skiathos – Greece, 24 – 28 June 2007.*

B9. "Exergy Analysis of the Integrated Biomass Gasification – Solid Oxide Fuel Cell Process", C. Athanasiou, S. Douvartzides, E. Vakouftsi, F. Coutelieris and G. Marnellos. *Proc. 3rd International Exergy Energy and Environment Symposium, Evora – Portugal, 1 – 5 July 2007.*

B10. "Microscopic modeling of transport phenomena in a planar solid oxide fuel cell", E. Vakouftsi, G. Marnellos, C. Athanasiou and F. Coutelieris. *Proc. 3rd International Exergy Energy and Environment Symposium, Evora – Portugal, 1 – 5 July 2007.*

B11. "Modeling of flow and transport processes occurred in a typical polymer electrolyte membrane fuel cell (PEM-FC)", E. Vakouftsi, G. Marnellos, C. Athanasiou and F.A. Coutelieris. *Proc. 3rd International Conference on Diffusion in Solids and Liquids, Algarve – Portugal, 4 – 6 July 2007.*

Assistant Professor, Dept. of Mechanical Engineering, UoWM

B12. "Electrocatalytic decomposition of nitrous oxides using steam electrolysis in a $Pd|SrCe_{0.95}Yb_{0.05}O_{3-a}|Ag$ proton conducting solid electrolyte membrane reactor", K. Kalimeri, G. Pekridis, N. Kaklidis, E.F. Iliopoulou, C. Athanasiou, G.E. Marnellos. *Proc. 1st International Conference on the Origin of Electrochemical Promotion of Catalysis (OREPOC), Thessaloniki – Greece, 1-5 October, 95-98, 2007 (Edited by D. Tsiplakides & S. Balomenou ISBN: 978-960-98231-0-4).*

B13. "Mechanistic analysis of methane dry reforming over palladium electrodes in an YSZ cell", K. Kalimeri, G. Pekridis, N. Kaklidis, M. Ouzounidou, G. Marnellos, C. Athanasiou. *Proc. 1st International Conference on the Origin of Electrochemical Promotion of Catalysis (OREPOC), Thessaloniki – Greece, 1-5 October, 144-148, 2007 (Edited by D. Tsiplakides & S. Balomenou ISBN: 978-960-98231-0-4).*

B14. "Biomass pyrolysis and solid oxide fuel cells conjuction: Simulation and preliminary technoeconomical data", C. Athanasiou, J. Garagounis, G. Marnellos, E. Antonakou, I. Fessas and A. Lappas. *Proc. Conference on the promotion of Distributed Renewable Energy Sources in the Mediterranean region, Nicosia, Cyprus, 11-12 December 2009.*

B15. "Carbon to electricity in a novel solid oxide fuel cell employing Cu-based catalysts as anodic composites and carbon additives", M. Konsolakis, G.E. Marnellos, I. Garagounis, V. Kyriakou. *Proc. 6th International Conference on Clean Coal Technologies, Thessaloniki, Greece, 12-16 May 2013.*

B16. "Iso-Octane internal reforming in a solid oxide fuel cell using Co/CeO_2 as anode", A. Al-Musa, V. Kyriakou, M. Al-Saleh, R. Al-Shehri, N. Kaklidis, G.E. Marnellos. *Proc. 224th Electrochemical Society Meeting, San Francisco, USA, October 27 – November 1 2013*.

Associate Professor, Dept. of Mechanical Engineering, UoWM

B17. "An electrocatalytic membrane-assisted process for hydrogen production from H2S in Black Sea: Preliminary results", D. Ipsakis, Tz. Kraia, G.E. Marnellos, M. Ouzounidou, S.Voutetakis, R.Dittmeyer, A.Dubbe, K. Haas-Santo, M. Konsolakis, H.E.Figen, N.O.Güldal, S.Z.Baykara. *Proc. 13th International Conference on Clean Energy, Istanbul, Turkey, June 8-12, 1028-1035, 2014.*

B18. "Direct utilization of lignite coal in a Co-CeO_2/YSZ/Ag Solid Oxide Fuel Cell", N. Kaklidis, I. Garagounis, V. Kyriakou, V. Besikiotis, A. Arenillas, J.A. Menéndez, G.E. Marnellos, M. Konsolakis. *Proc. 13th International Conference on Clean Energy, Istanbul, Turkey, June 8-12, 3191-3200, 2014.*

B19. "Nitrous oxide decomposition over Al_2O_3 supported noble metal (Pt, Pd, Ir) catalysts: Effect of metal loading and feed composition", E. Papista, E. Pachatouridou, E.F. Iliopoulou, A. Delimitis, G. Goula, I.V. Yentekakis, G.E. Marnellos, M. Konsolakis. *Proc. 13th International Conference on Clean Energy, Istanbul, Turkey, June 8-12, 2593-2601, 2014.*

B20. "Direct conversion of biomass to electricity in a Co-CeO_2|YSZ|Ag solid oxide fuel cell", N. Kaklidis, Th. Agathocleous, M. Neophytou, G.E. Marnellos and M. Konsolakis. *CEMEPE and SECOTOX CONFERENCE 2017, Thessaloniki, Greece, June 25-28, 2017.*

Professor, Dept. of Mechanical Engineering, UoWM

B21. "Improved electrochemical performanace of a direct carbon fuel cell by catalyst and/or carbonates infusion into fuel feedstock: The case of Bituminous coal", N. Kaklidis, R. Strandbakke, A. Arenillas, A.J. Menéndez, M. Konsolakis, G.E. Marnellos. 9th International Conference on Hydrogen Production (ICH2P-2018), Zagreb, Croatia, July 16-19, 2018.

B22. "Hydrogen production by H_2S decomposition over ceria supported transition metal (Co, Ni, Fe and Cu) catalysts", Tz. Kraia, M. Konsolakis, N. Kaklidis, G.E. Marnellos. 9th International Conference on Hydrogen Production (ICH2P-2018), Zagreb, Croatia, July 16-19, 2018.

B23. "Effect of Greek lignite pyrolysis protocols on the physicochemical properties and gasification reactivity of as-produced chars", Nikolaos Kaklidis, Athanasios Lampropoulos, Eleni Papista, Vassilios Binas, Michalis Konsolakis, George E. Marnellos. *10th International Conference on Hydrogen Production (ICH2P-2019), Cluz-Napoca, Romania, May 15-17, 2019.*

B24. "Highly active and stable Cobalt/Ceria mixed oxide catalysts for H_2 production by H_2S decomposition in H_2O excess conditions". Tzouliana Kraia, Michalis Konsolakis, George E. Marnellos. *10th International Conference on Hydrogen Production (ICH2P-2019), Cluz-Napoca, Romania, May 15-17, 2019.*

B25. "Rational design of ceria-based nanocatalysts for CO_2 hydrogenation to value-added products", M. Konsolakis, M. Lykaki, S. Stefa, S.A.C. Carabineiro, G. Varvoutis, E. Papista, G.E. Marnellos. 2019 International Conference on Materials and Nanomaterials (MNs-19), Paris, France, July 17-19, 2019.

B26. "Feasibility of CO_2 conversion to methanol: the case of upgrading a municipal solid waste (MSW) power plant", C. Athanasiou, S. Karavasili, G.E. Marnellos, S. Papaefthimiou, M. Konsolakis. *4th Annual Symposium of Hellenic Association of Energy Economics (HAEE), Athens, Greece, May 6-8, 2019.*

C. Chapters in Books

1. "Integration of hydrogen energy technologies in autonomous power systems", G.E. Marnellos, C. Athanasiou, S.S. Makridis, E.S. Kikkinides, Ch. 3, p. 23-82 in "**Hydrogen based autonomous power systems**. Technoeconomic analysis of the integration of hydrogen in autonomous power systems" by N. Lymberopoulos and E.I. Zoulias, Springer Eds 2008 (ISBN: 978-1-84800-246-3).
2. "Bio-hydrogen: Production technologies, prospects and socio-economic aspects", Z. Ioakeimidis, T. Kraia, M. Ouzounidou, G.E. Marnellos, Ch. 12 in **"Biofuels – Sustainable Energy"**. Editors N. Karnavos, A. Lappas and G.E. Marnellos, Tziolas Editions, 2014.

D. Patents

1. "Method and apparatus for ammonia synthesis at atmospheric pressure", *G. Marnellos and M. Stoukides. European Patent* ***0972855 A1 & B1*** *(2001).*
2. "Method and prototype reactor for ammonia synthesis at atmospheric pressure", G. Marnellos and M. Stoukides. Greek Patent **1003196** (1999).

TRANSLATION IN GREEK OF SCIENTIFIC TEXTBOOKS

1. "**Basic Principles and Calculations in Chemical Engineering**" D.M. Himmeblau, *Prentice Hall*.
2. "**Elements of Chemical Reaction Engineering**", H. Scott Fogler, *Prentice Hall*.

PARTICIPATION IN RESEARCH PROJECTS & INDUSTRIAL CONTRACTS

PhD Candidate

1. "Optimization, quality control and construction of catalytic converters and soot traps"
Source of Funding: Ministry of Development, GSRT, EPET II call
Budget: 49672 € **Duration:** 02/1995 – 12/1997 **Role in the Project:** PhD Candidate

2. "Electrochemical activation of methane using solid oxide membranes"
Source of Funding: European Union, Joule II call
Budget: 341428 € **Duration:** 11/1992 – 05/1996 **Role in the Project:** PhD Candidate

Post-Doc Researcher

3. "Hydrogenation of carbon dioxide with the aid of proton conductive membranes"
Source of Funding: Ministry of Development, GSRT, PAVE 1998 call
Budget: 24300 € **Duration:** 01/1999 – 12/2000 **Role in the Project:** Post-Doc

4. "Production of silicon carbide thin films with electrochemical vapour deposition"
Source of Funding: Ministry of Development, GSRT, PENED 1999 call
Budget: 54500 € **Duration:** 01/2000 – 07/2001 **Role in the Project:** Post-Doc

5. "Hydrogen in oxide systems – fundamentals and promising applications"
Source of Funding: European Union, INTAS call
Budget: 6830 € **Duration:** 04/2000 – 04/2002 **Role in the Project:** Post-Doc

6. "Catalytic abatement of N_2O and NO_X from combustion power plants"
Source of Funding: European Union, FP5, ENERGY call
Budget: 250000 € **Duration:** 2002 – 2005 **Role in the Project:** Post-Doc

7. "Ceramic membranes for hydrogen separation"
Source of Funding: European Union, FP6, GROWTH call
Budget: 346500 € **Duration:** 01/2002 – 12/2005 **Role in the Project:** Post-Doc

8. "Ammonia synthesis at atmospheric pressure"
Source of Funding: Ministry of Development, GSRT, PENED 2001 call
Budget: 88050 € **Duration:** 12/2002 – 11/2005 **Role in the Project:** Post-Doc

9. "Establishment of a spin-off for the development of seawater desalination plants with the use of renewable energy"
Source of Funding: Ministry of Development, GSRT, PRAXE 2001 call
Budget: 44000 € **Duration:** 11/2003 – 10/2004 **Role in the Project:** Post-Doc

10. "Synthesis of ammonia at atmospheric pressure using water"
Source of Funding: Industrial contract with HONDA R&D Europe
Budget: 35200 € **Duration:** 09/2003 – 03/2004 **Role in the Project:** Post-Doc

Lecturer, Dept. of Mechanical Engineering, UoWM

11. "Development of solid oxide fuel cells for the direct electrochemical oxidation/dehydrogenation of hydrocarbons"
Source of Funding: Ministry of Education & Religious Affairs, EPEAEK, ARCHIMEDES call
Budget: 6000 € **Duration:** 2005 – 2007 **Role in the Project:** UoWM group leader

12. "Hydrogen production in solid electrolyte membrane reactors"
Source of Funding: Ministry of Education & Religious Affairs, EPEAEK, PYTHAGORAS call
Budget: 85000 € **Duration:** 2005 – 2008 **Role in the Project:** UoWM group leader

13. "Catalytic and electrocatalytic abatement of nitrogen oxides with the simultaneous oxidation of hydrocarbons in power plants flue gases"
Source of Funding: Ministry of Development, GSRT, PENED 2003 call
Budget: 115250 € **Duration:** 2005 – 2008 **Role in the Project:** Project Coordinator

14. "Development and application of novel bi-metallic anodic electrodes in direct hydrocarbon fuel cells"
Source of Funding: Ministry of Development, GSRT, S&T cooperation between Non EU countries call
Budget: 65000 € **Duration:** 2006 – 2008 **Role in the Project:** Project Coordinator

15."Investigation of micro-scale mechanisms in the gas diffusion layer of the proton exchange membrane fuel cell"
Source of Funding: Ministry of Development, GSRT, S&T cooperation between Non EU countries call
Budget: 65000 € **Duration:** 2006 – 2008 **Role in the Project:** UoWM group leader

16."A combined biomass pyrolysis–SOFC process for the simultaneous generation of gas/liquid biofuels and energy"
Source of Funding: Ministry of Development, GSRT, S&T cooperation between Greece-Cyprus
Budget: 17500 € **Duration:** 2006 – 2008 **Role in the Project:** UoWM group leader

17. Catalysis: A vital tool for sustainable energy production"
Source of Funding: Ministry of Development, GSRT, People Networks call
Budget: 5000 € **Duration:** 2006 – 2008 **Role in the Project:** UoWM group leader

18."Feasibility study for the development of energy crops in eastern Crete in order to produce biofuels or for the co-generation of power", Industrial contract with OANAC (Project coordinator).
Source of Funding: Industrial contract with OANAC
Budget: 7000 € **Duration:** 2006 **Role in the Project:** Project Coordinator

19."Development of a combined biomass anaerobic digestion – PEMFC pilot plant", Sub-contracting with the Environmental Centre of Kozani Perfecture (Project coordinator).
Source of Funding: Subcontractor of KEPE Kozanis, Interreg, SMART call
Budget: 85000 € **Duration:** 2007 **Role in the Project:** UoWM group leader

Assistant Professor, Dept. of Mechanical Engineering, UoWM

20."Simultaneous production of hydrogen and C2's hydrocarbons in solid oxide membrane reactors"
Source of Funding: European Union, ERANET, ACENET call
Budget: 120000 € **Duration:** 2008 – 2011 **Role in the Project:** Researcher of CERTH/CPERI

21. "BIOCLUS-Developing Innovation and Research Environment in five European Regions in the field of Sustainable Use of Biomass Resources"
Source of Funding: European Union, FP7, REGIONS call
Budget: 345000 € **Duration:** 2010 – 2013 **Role in the Project:** Project Coordinator

22."Direct hydrocarbon micro-Solid Oxide Fuel Cell (m-SOFC)"
Source of Funding: Fulbright Foundation
Budget: 6000 $ **Duration:** 2010 (3 months) **Role in the Project:** Research scholar

23."Development of proton conducting SOFCs for the co-generation of electrical/thermal power and chemicals", IRAKLITOS II, Greek Ministry of Education and Lifelong Learning (Project coordinator).
Source of Funding: Ministry of Education & Life Long Learning, IRAKLITOS II call
Budget: 42000 € **Duration:** 2011 – 2014 **Role in the Project:** Project Coordinator

24."Training program for undergraduate students in the Dept. of Mechanical Engineering at the UoWM"
Source of Funding: Ministry of Education & Life Long Learning
Budget: 147492,72 € **Duration:** 2009 – 2012 **Role in the Project:** Project Coordinator

25."Cooperation with Tropical – Green Technologies SA for the simulation of transport phenomena in natural gas and biogas fed SOFCs"
Source of Funding: Ministry of Education and Life Long Learning, Innovation Coupons call
Budget: 7000 € **Duration:** 2011 **Role in the Project:** Project Coordinator

26."Efficient conversion of coal to electricity – Direct Coal Fuel Cells (DCFC)"
Source of Funding: European Union (FP7), Research Fund for Coal and Steel
Budget: 400000 € **Duration:** 2011 - 2014 **Role in the Project:** UoWM leader

27. "H_2 production from H_2S decomposition in micro-structured proton-conducting solid oxide membrane reactors"
Source of Funding: European Union, Black Sea ERANET call
Budget: 120000 € **Duration:** 2012 – 2015 **Role in the Project:** Project Coordinator

28."Development of novel catalyst composites via the synergy of structure and surface promoters for the simultaneous abatement of Nitrogen (NO_X) and Nitrous (N_2O) oxides"
Source of Funding: Ministry of Education and Life Long Learning, THALIS call
Budget: 598000 € **Duration:** 2011 – 2015 **Role in the Project:** Project Coordinator

29. "Execution of the research project entitled novel anodes for solid electrolyte membrane reactors and their applications in solid oxide fuel cells"
Source of Funding: Contract with King Abdulaziz City for Science & Technology
Budget: 53333 $ **Duration:** 2011 – 2013 **Role in the Project:** Researcher of CERTH/CPERI

30."Ammonia synthesis from steam and nitrogen at atmospheric pressure: The electrochemical approach"
Source of Funding: General Secretariat for Research & Technology, Greek Ministry of Education
Budget: 2500000 € **Duration:** 2012 – 2015 **Role in the Project:** Researcher of CERTH/CPERI

31. "CO_2 and H_2O toward methanol synthesis at atmospheric pressure in co-ionic electrochemical membrane reactors"

Source of Funding: CAPITA ERANET
Budget: 150000 € **Duration:** 2013 – 2015 **Role in the Project:** Researcher of CERTH/CPERI

32. "Solid state ammonia synthesis (SSAS) in tubular ceramic protonic reactors"
Source of Funding: CAPITA ERANET
Budget: 150000 € **Duration:** 2016 – 2017 **Role in the Project:** Researcher of CERTH/CPERI

33. "Direct conversion of Biomass to Electricity in MED area via an internal catalytic gasification solid oxide fuel cell"
Source of Funding: ERANET MED
Budget: 40000 € **Duration:** 2017 – 2020 **Role in the Project:** UoWM leader

Professor, Dept. of Mechanical Engineering, UoWM

34. "Proton and oxygen co-ionic conductors for CO_2/H_2O co-electrolysis and intermittent RES conversion to methanol and other chemicals towards EU Sustainability – PROMETHEUS"
Source of Funding: General Secretariat for Research & Technology, Greek-German bilateral S&T cooperation
Budget: 286000 € **Duration:** 2018 – 2021 **Role in the Project:** Researcher of CERTH/CPERI

35. "Efficient conversion of Greek lignite and agricultural residues to electricity through catalyst-aided integrated gasification/SOFC and Direct Carbon and Fuel Cell processes – LIGBIO-GASOFC"
Source of Funding: General Secretariat for Research & Technology, Research-Innovate-Create call
Budget: 261548.69 € **Duration:** 2018 – 2021 **Role in the Project:** Coordinator at UoWM

36. "Rationale design and development of nano-structured catalysts for the CO_2 transformation to value-added products – NANOCO2"
Source of Funding: General Secretariat for Research & Technology, Research-Innovate-Create call
Budget: 182314.83 € **Duration:** 2018 – 2021 **Role in the Project:** CERTH/CPERI Leader

FELLOWSHIPS - AWARDS

1995 – 1998 Undergraduate and Post-graduate scholarships from CPERI/CERTH.
1998 Post-graduate scholarship from the General Secretariat of Research & Technology (GSRT).
2010 Fulbright research scholar at MIT
2015 Award by the University of Western Macedonia for Innovative Research in 2012-2014

SCIENTIFIC ARTICLES WRITTEN BY OTHERS ABOUT MY RESEARCH

1. "Low Pressure NH_3 Reported", Peter Fairley, *Chemical Week*, October 7, p41 (1998).
2. "Perspectives: Haber for the scrapheap", *Chemistry in Britain*, 35(1), 16 (1999).
3. "Making ammonia", S. Reucroft and J. Swain, *Boston Globe*, October 19, (1998).
4. "Ammoniak-Synthese bei weniger Druck", *Berliner Morgenpost*, October 6, (1998).
5. "New method to produce ammonia", *Agelioforos Sunday Ed.*, November 1st (1998).
6. "Ammonia with a new method", *Patris*, January 12th (1999).
7. "Maybe we can change the way to produce ammonia", *IMERISIA*, December 13th (2003).

INVITED PRESENTATIONS

1. "Electrochemical synthesis of ammonia at atmospheric pressure and low temperatures", invited lecturer, on Center for Atomic-scale Materials Physics (CAMP), Denmark, March 10, 2000.
2. "Technological applications of solid state proton conductors", invited lecturer, on EU/NORDIC Workshop on solid state protonic conductor, Geilo Norway, March 20-25, 2001.
3. "High temperature proton conducting solid electrolyte membrane reactors: Current experience and perspectives in heterogeneous catalysis and chemical cogeneration", 2nd Nordic Seminar on Functional Energy Related Materials, Kongsberg, Norway, April 12-15, 2010.
4. "Power generation in a bio-oil fed SOFC using $Cu\text{-}CeO_2$ as anode", Hydrogen Research at the Greek-Bulgarian Border Region, Thessaloniki, Greece, October 17, 2012.
5. "Carbon to electricity in solid oxide fuel cells: effect of feedstock characteristics and process parameters", Gemini FORENT seminar on "High-temperature solid-state electrochemistry", Oslo, Norway, October 23, 2014, University of Oslo, Forskningsparken, meeting room "Agora" at FERMiO.
6. "H_2S in Black Sea: Turning an environmental threat to an opportunity for clean energy production. Progress achieved in the framework of Black Sea ERANET, H_2S-PROTON project". International Center for Black Sea Studies (ICBSS), 8th International Black Sea Symposium on "Science, Technology & Innovation in Black Sea: Moving Forward", Athens, Greece, November, 12-13, 2015, Hotel Amalia.

7. "Biomass power opportunities in agriculture and for sustainable energy generation", Event in the framework of The IPA Cross-Border Greece-Albania Programme for the energy exploitation of biomass (2007-2013), Kastoria, Greece, November 26, 2015, Hotel Esperos Palace.
8. "Direct coal fuel cells: An efficient and environmental friendly way to directly convert solid fuels to electricity", 1st Mini Conference on Emerging Engineering Applications, Chalkida, Greece, November 26-27, 2015, Technological Educational Institute of Stereas Elladas.
9. "FCH Technologies: Potential large implementation projects in Greece", 5th Hellenic Forum for Science, Technology and Innovation. Workshop on Integrated, Innovative Renewable Energy – Hydrogen Systems and Applications. NCSR Demokritos, July 5, 2017, Athens.

EXTERNAL EXAMINER IN PHD THESES

1. **"Novel electrocatalytic membrane for low temperature ammonia synthesis"**, **Sujitra Klinsrisuk**, University of St. Andrews, 20-07-2010.
2. **"Bifunctional activation and heterolytic cleavage of ammonia and dihydrogen by silica-supported tantalum imido amido complexes and relevance to the dinitrogen cleavage mechanism by tantalum hydrides"**, **Yasemin Kaya**, **University of Claude Bernard – Lyon 1**, Lyon 25-03-2013.
3. **"Low temperature oxidation of hydrocarbons using an electrochemical reactor", Davide Ippolito, Denmark Technical University (DTU)**, Roskilde, Denmark 04-07-2013.
4. **"Oxygen electrodes for ceramic fuel cells with proton and oxide ion conducting electrolytes", Ragnar Strandbakke, University of Oslo**, Oslo, Norway 24-10-2014
5. **"Electrochemical promotion of novel catalysts with alkaline conductors for hydrogen production from methanol", Jesus Gonzalez Cobos, University of Castilla La Mancha**, Ciudad Real, Spain 22-07-2015

REVIEWER IN SCIENTIFIC JOURNALS/CONFERENCES

1. SPRINGER Publishing
2. Applied Catalysis B: Environmental
3. Industrial & Engineering Chemistry Research
4. Water, Air & Soil Pollution
5. Solid State Ionics
6. International Journal on Hydrogen Energy
7. 14th International Congress on Catalysis
8. Polish Journal of Environmental Studies
9. Journal of Hazardous Materials
10. Electrochimica Acta
11. Chemical Engineering Communications
12. Journal of Materials Science
13. Journal of Catalysis
14. 9th Europ. Symp. Electrochemical Engineering
15. Energy & Fuels
16. Intl. Conference on Hydrogen Production
17. Journal of Electrochemical Society
18. Fuel Processing Technology
19. Intl. Journal of Chemical Reactor Engineering
20. Energy & Environmental Science
21. Journal of Solid State Electrochemistry
22. Catalysis Surveys from Asia
23. Fuel Cells
24. Chemical Engineering and Processing: Process Intensification
25. Energy Conversion & Management
26. International Journal of Global Warming
27. Journal of the Energy Institute
28. Fuel
29. Reaction Kinetics, Mechanisms and Catalysis
30. Renewable Energy
31. Journal of Agricultural Chemistry & Environment
32. Journal of Alloys and Compounds
33. Catalysis Today

REVIEWER IN RESEARCH FUNDING AGENCIES

1. US Department of Agriculture (Small Business Innovation Research)
2. EU, ISTC projects
3. Greek Ministry of Development, General Secretariat of Research & Technology (GSRT)
4. Engineering and Physical Sciences Research Council (EPSRC)
5. Research Committee of the Technical University of Crete
6. European Commission - Fuel Cells and Hydrogen Joint Undertaking (Evaluator, Rapporteur)
7. Greek Ministry of Education
8. Epirus Region Authorities
9. M-ERA.NET Transnational Calls for 2013, 2014, 2015, 2016, 2017, 2018
10. ERANETMED (2015) program funded by the 7th EU RTD Framework Programme and the Mediterranean Partner Countries on Renewable Energies, Water Resources and their connections for the Mediterranean Region
11. The Research Council of Norway, Activity NANO2021
12. CEF Transport: Connecting Europe Facility (2016-2017)

SCIENTIFIC & ADMINISTRATIVE ACTIVITIES

1. Departmental coordinator in the ***ERASMUS/SOCRATES*** program (2003 – 2015).
2. Departmental coordinator in the **Training** program for undergraduates (2008 – 2015)
3. Scientific committee of the ***5th Panhellenic Symposium of Chemical Engineers*** (2004).
4. Scientific committee of the **10th Panhellenic Symposium on Catalysis** (2008)
5. Scientific committee of the ***2nd International Conference on Environmental Management, Engineering, Planning and Economics*** (2008).
6. Organizing committee of the ***2nd Panhellenic Symposium on Hydrogen Technologies*** (2005).
7. Organizing committee of the ***2nd Panhellenic Symposium on Alternative Fuels and Biofuels*** (2007).
8. Deputy coordinator of the ***Fuel Cells for Stationary & Mobile Applications working group***, ***Hellenic Hydrogen Platform*** (2007).
9. Greek representative in ***COST Action 543 "Bioethanol processing in fuel cells"*** (2008).
10. BOD member of HELEXPO SA (2010 – 2012)
11. Scientific committee of the **11th Panhellenic Symposium on Catalysis** (2010)
12. Organizing committee of the 2011 International Conference on Hydrogen Production (ICH2P-11)
13. Scientific committee of the **12th Panhellenic Symposium on Catalysis** (2012)
14. Organizing committee of the **13th Panhellenic Symposium on Catalysis** (2014)
15. Chairman of the Students Affairs Committee (05/2015 – 2016)
16. Chairman of the newly founded Department of Environmental Engineering at the University of Western Macedonia (6/2015 – 12/2017)
17. Vice Rector for Financial Planning, Infrastructure and Development (2016 – 2019)
18. Chairman of the Research Committee of the University of Western Macedonia (2016 – 2019)
19. Chairman of the Cluster of Bioenergy and Environment in Western Macedonia (2016 – To date)
20. Associate Editor of "Hydrogen" journal of MDPI Editions

SOCIETY MEMBERSHIPS

1. Technical Chamber of Greece (1997).
2. Vice-Chairman, ***North-Western Branch of Hellenic Association of Chemical Engineers*** (2000 – 2005).
3. Member of the ***Technical Education Committee*** of the Technical Chamber of Greece (2003 – 2006).
4. Chairman, ***North-Western Branch of Hellenic Association of Chemical Engineers*** (2005 - 2007).
5. Vice-Chairman, ***Hellenic Hydrogen Society*** (2006 – present).
6. Vice-Chairman, ***Society of Faculty Members in the University of Western Macedonia*** (2006 – 2008).
7. Member of the ***Panhellenic Council of the Technical Chamber of Greece*** (2006 – present).
8. Member of Fulbright Scholars Alumni (2011 – present).