

## CURRICULUM VITAE

### GRAMMATIKI GOULA

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#### Personal details

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*Name:* GRAMMATIKI GOULA

*Date of Birth - Nationality:* 18/02/1979 - Greek

*Current place of Work:* Lab. of Physical Chemistry and Chemical Processes, School of Environmental Engineering, Technical University of Crete

*Current position:* Senior researcher in Lab. of Physical Chemistry and Chemical Processes

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#### University Education

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- Ph.D., Department of Environmental Engineering and the Department of Sciences, Technical University of Crete, Chania, Greece (2004-2009).  
Subject: Kinetics, electrokinetics behavior and electrocatalytic phenomena of innovative electrocatalysts in fuel cells for reactions that are related with the control of pollutant emissions  
Faculty advisor: Professor I.V. Yentekakis.
  - Master degree in 'Operations Research', Department of Production Engineering and Management, Technical University of Crete, Chania, Greece (2003-2006).
  - Master degree in the 'Environmental quality control and management', Department of Environmental Engineering at the Technical University of Crete, Chania, Greece (2002-2003).
  - Diploma of Chemical Engineering, National Technical University of Athens (N.T.U.A.), Athens, Greece (1997-2002).
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#### Research activities

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The *Fellow's* research activities involve:

- Heterogeneous Catalysis. Synthesis and characterization of novel catalyst formulations and composites. Material science and technology.
- Electrochemistry, electrocatalysis. Environmental Catalysis.
- Hydrocarbons and biofuels (biogas, bioethanol, etc) reforming. Hydrocarbons valorization.
- Fuel cells.
- Hydrogen energy and Renewable Energy Sources.

Laboratorial experience involves:

- Preparation and characterization of catalytic and solid materials with various techniques.
- Design, construction and operation of experimental apparatuses and reactors for the investigation of reactions under steady state and transient conditions.

- Analytical techniques: Gas Chromatography (GC), Mass Spectrometry (MS), Fourier Transform Infrared Spectroscopy (FTIR), Gas Chromatography/Mass Spectrometry (GC-MS), TPD-TPR-TPO measurements, Kinetic measurements, Techniques of measurement of total and exposed metallic surface area (BET method, selective chemisorption of gases), Techniques of analytical chemistry, Operation and usage of laboratorial and mechanical equipment.

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### **Participation in Research Programs**

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- Postdoctoral Fellow – Scholarship from Technical University of Crete, (01/10/2016-30/09/2017).
- Postdoctoral Fellow - Research program, Thalis - University of Western Macedonia and Technical University of Crete, «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, (03/12/2012-31/03/2015).
- Research program, Technical University of Crete, «Power valorization and treatment of enological wastewater», Funded by GSRT and EU, Program ESPA, (03/06/2014-30/06/2015).
- Research program, Technical University of Crete, «Novel fuel cells for direct electrical energy production by using biogas, bio-alcohols and hydrocarbons», Funded by Technical University of Crete, (01/04/2008-31/12/2009).
- Research program, Technical University of Crete, «Development and application of novel bi-metallic anodic electrodes for direct hydrocarbon solid oxide fuel cells (SOFC)», Funded by GSRT and EU, Program Non-EU-242, (01/10/2007-31/03/2008).
- EPEAEK II Project, Irakleitos, «Kinetics, electrokinetics behavior and electrodic phenomena in novel fuel cells for environmentally important reactions», Funded by GSRT and EU, (01/04/2004-07/11/2005).
- Research program, Technical University of Crete, «Treatment of polyphenoles wastes of olive presses with combination of ultrasounds and biological activities», Funded by GSRT and EU, (01/05/2003-30/09/2003).

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### **Teaching experience**

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- Courses on “Physical Sciences”, Second Chance Schools, Chania, Institute of Constant Education of Adult (02/05/2017-31/07/2017).
- Laboratory courses on the undergraduate course ‘Physical chemistry’, Technical University of Crete (01/12/2016-31/12/2016).
- Laboratory courses on the undergraduate course ‘Physical chemistry’, Technical University of Crete (01/09/2004-30/06/2016).
- Courses on “Environmental Education-Ecology”, “Cosmetology” and “Enology”, DIEK of Chania, Institute of Constant Education of Adult (26/11/2015-30/06/2016).
- Courses on “Eco home solutions”, KDVM Chania, Institute of Constant Education of Adult (09/12/2015-29/01/2016).
- Courses on “Sciences and Technology-Environmental Education”, Second Chance Schools, Chania, Institute of Constant Education of Adult (05/02/2013-28/06/2013 and 15/10/2013-30/06/2014).
- Thermodynamics tutor for undergraduate students, Technical University of Crete (01/03/2005-30/04/2005).

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## Participation in PhDs, Masters and Diploma Works Supervising

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Participation in co-supervising with Professor I. Yentekakis at PhDs (3), M.Sc. (8) and Engineering Diploma Works (5). Member of the examining board of four (4) Diploma Works.

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## Work experience

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- Employee at the insurance company METROLIFE – EMPORIKI, Department of 'Supplies and Loans', N. Smyrni, Athens, Greece (1/6/2001-30/8/2001).
- Training work at the industrial unit of production of cosmetics and raw material of detergents, KAPAXIM A.B.E.E., Oinofita Viotias (10/7/2000-5/9/2000).

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## Publications

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The *Fellow* is currently guest Associate Editor of the journal "Frontiers in Environmental Science", organizing/hosting the Research Topic "Advanced Utilization and Management of Biogas" as a specialty section of the journal in collaboration with Ioannis V. Yentekakis, Stylianos G. Neophytides and Pierluigi Leone. The *Fellow* is also a reviewer for the Frontiers in Environmental Science.

**Research papers (publications) in international peer-reviewed journals: 14**

**Research papers (publications) in national technical journals: 1**

**Refereed publications in conference proceedings: 27**

**Citations = 245.**

**H-index = 7**

➤ **Peer-reviewed international journals**

- I.V. Yentekakis, G. Goula, S. Kampouri, I. Betsi-Argyropoulou, P. Panagiotopoulou, M.J. Taylor, G. Kyriakou, R.M. Lambert, «Ir-catalysed Nitrous oxide (N<sub>2</sub>O) decomposition: Effect of Ir particle size and metal-support interactions», *Catalysis Letters*, (2017), *in press*.
- I.V. Yentekakis, G. Goula, Review Article, «Biogas Management: Advanced Utilization for Production of Renewable Energy and Added-value Chemicals», *Frontiers in Environmental Science*, Vol. 6, Article 7, (2017), *in press*.  
<http://journal.frontiersin.org/article/10.3389/fenvs.2017.00007/full>  
*Times Cited: 1 (from Web of Science and Scopus)*
- N. D. Charisiou, G. Siakavelas, K. N. Papageridis, A. Baklavaridis, L. Tzounis, G. Goula, I. V. Yentekakis, K. Polychronopoulou, M. A. Goula, «The effect of WO<sub>3</sub> modification of ZrO<sub>2</sub> support on the Ni-catalysed dry reforming of biogas reaction for syngas production», *Frontiers in Environmental Science (Specialty section: Wastewater Management)*, (2017), *in press*.
- M.A Goula, N.D. Charisiou, G. Siakavelas, L. Tzounis, I. Tsiaoussis, P. Panagiotopoulou, G. Goula, I.V. Yentekakis, «Syngas production via the biogas dry reforming reaction over Ni supported on zirconia modified with CeO<sub>2</sub> or La<sub>2</sub>O<sub>3</sub> catalysts», *International Journal of Hydrogen Energy*, Vol. 42, Issue 19, (2017), pp. 13724-13740.  
*Times Cited: 1 (from Web of Science and Scopus)*      *Impact Factor: 3.582*
- I.V. Yentekakis, G. Goula, P. Panagiotopoulou, S. Kampouri, M.J. Taylor, G. Kyriakou, R.M. Lambert, «Stabilization of catalyst particles against sintering on oxide

- supports with high oxygen ion lability exemplified by Ir-catalyzed decomposition of  $N_2O$ », *Applied Catalysis B: Environmental*, Vol. 192, (2016), pp. 357-364.  
*Times Cited: 6 (from Web of Science and Scopus)*      *Impact Factor: 9.446*
- I.V. Yentekakis, G. Goula, P. Panagiotopoulou, A. Katsoni, E. Diamadopoulou, D. Matzavinou, A. Delimitis, «Dry reforming of methane: Catalytic performance and stability of Ir catalysts supported on  $\gamma-Al_2O_3$ ,  $Zr_{0.92}Y_{0.08}O_{2-\delta}$  (YSZ) or  $Ce_{0.9}Gd_{0.1}O_{2-\delta}$  (GDC) supports», Special issue of Topics in Catalysis, Vol. 58, (2015), pp. 1228-1241.  
*Times Cited: 3 (from Web of Science and Scopus)*      *Impact Factor: 2.486*
  - E. Pachatouridou, E. Papista, E. F. Iliopoulou, A. Delimitis, G. Goula, I.V. Yentekakis, G. E. Marnellos and M. Konsolakis, « Nitrous oxide decomposition over  $Al_2O_3$  supported noble metals (Pt, Pd, Ir): effect of metal loading and feed composition», *Journal of Environmental Chemical Engineering*, 3, (2015), pp. 815-821.  
*Times Cited: 13 (from Web of Science and Scopus)*      *Impact Factor: new journal*
  - M. Konsolakis, F. Aligizou, G. Goula, I.V. Yentekakis, « $N_2O$  decomposition over doubly-promoted  $Pt(K)/Al_2O_3-(CeO_2-La_2O_3)$  structured catalysts: On the combined effects of promotion and feed composition», *Chemical Engineering Journal*, Vol. 230, (2013), pp. 286-295.  
*Times Cited: 13 (from Web of Science and Scopus)*      *Impact Factor: 6.216*
  - T. Papadam, G. Goula, I.V. Yentekakis, «Long-term operation stability tests of intermediate and high temperature Ni-based anodes' SOFCs directly fueled with simulated biogas mixtures», *International Journal of Hydrogen Energy*, Vol. 37, (2012), pp. 166680 - 16685.  
*Times Cited: 20 (from Web of Science and Scopus)*      *Impact Factor: 3.582*
  - I.V. Yentekakis, G. Goula, T. Papadam, « Electricity production from wastewater treatment via a novel biogas-SOFC aided process», *Solid State Ionics*, Vol. 179, (2008), pp. 1521-1525.  
*Times Cited: 29 (from Web of Science and Scopus)*      *Impact Factor: 2.561*
  - G. Goula, P. Katzourakis, N. Vakakis, T. Papadam, M. Konsolakis, M. Tikhov, I.V. Yentekakis, «The effect of potassium on the  $Ir/C_3H_6+NO+O_2$  catalytic system», *Catalysis Today*, Vol. 127, Issues 1-4, (2007), pp.199-206.  
*Times Cited: 17 (from Web of Science and Scopus)*      *Impact Factor: 4.636*
  - G. Goula, V. Kioussis, L. Nalbantian and I.V. Yentekakis, «Catalytic and electrocatalytic behaviour of Ni-based cermet anodes under internal dry reforming of  $CH_4+CO_2$  mixtures in SOFCs», *Solid State Ionics*, Vol. 177, Issues 19-25, (2006), pp. 2119-2123.  
*Times Cited: 73 (from Web of Science and Scopus)*      *Impact Factor: 2.561*
  - I.V. Yentekakis, G. Goula, T. Papadam, « A novel biogas – fueled – SOFC aided process for direct production of electricity from wastewater treatment: Comparison of the performance of high and intermediate temperature SOFCs», *Lecture Series on Computer and Computational Sciences*, Vol. 7, (2006), pp.624-628.  
*Times Cited: x (from Web of Science and Scopus)*      *Impact Factor: -*
  - E. Psillakis, G. Goula, D. Mantzavinou and N. Kalogerakis, «Degradation of polycyclic aromatic hydrocarbons in aqueous solutions by ultrasonic irradiation», *Journal of Hazardous Materials*, 108, (2004), pp. 95-102.  
*Times Cited: 69 (from Web of Science and Scopus)*      *Impact Factor: 6.065*

➤ **National technical scientific journals**

- I.V. Yentekakis, G. Goula, D. Mantzavinos, N. Kalogerakis, «Electricity production from urban and industrial wastewater treatment», *Greek Technical Review Journal, (in Greek)* 163, (2005), pp. 52-56.

➤ **Refereed Conference Proceedings**

- G. Goula, I. Betsi-Argyropoulou, M. Chatzisimeon, P. Panagiotopoulou, K. Kousi, D. Kontarides, M. Taylor, G. Kyriakou, R.M. Lambert and I. Yentekakis, Proceedings of the 14<sup>th</sup> Hellenic Symposium of Catalysis, (2016).
- I. Yentekakis, G. Goula, I. Betsi-Argyropoulou, M. Chatzisimeon, P. Panagiotopoulou, K. Kousi, D. Kontarides, M. Taylor, G. Kyriakou and R.M. Lambert, Proceedings of the 14<sup>th</sup> Hellenic Symposium of Catalysis, (2016).
- G. Goula, P. Panagiotopoulou, A. Katsoni, S. Fanourgiakis, G. Palioudaki, C. Papageorgiou, E. Diamantopoulos, I. Yentekakis, D. Mantzavinos, E. Nikolaidou, M. Iosifidou, Proceedings of the '10<sup>th</sup> Hellenic Scientific Conference of Chemical Engineering', (2015).
- E. Papista, N. Kaklidis, E. Pachatouridou, A. Delimitis, E. Iliopoulou, G. Goula, I. Yentekakis, G.E. Marnellos, M. Konsolakis, Proceedings of the '10<sup>th</sup> Hellenic Scientific Conference of Chemical Engineering', (2015).
- M. Konsolakis, F. Aligizou, G. Goula, I. Yentekakis, Proceedings of the '9<sup>th</sup> Hellenic Scientific Conference of Chemical Engineering', (2013).
- E. Zampetakis, A. Mpolmpou, G. Goula, M. Konsolakis, I. Yentekakis, Proceedings of the '9<sup>th</sup> Hellenic Scientific Conference of Chemical Engineering', (2013).
- E. Papista, N. Kaklides, E.F. Hliopoulou, M. Konsolakis, I. Yentekakis, G. Goula, G.E. Marnellos, Proceedings of the '9<sup>th</sup> Hellenic Scientific Conference of Chemical Engineering', (2013).
- M. Konsolakis, I.V. Yentekakis, G. Goula, E. Papista, N. Kaklides, G.E. Marnellos, Proceedings of the 12<sup>th</sup> Hellenic Symposium of Catalysis, (2012).
- M. Konsolakis, K. Drosou, G. Goula, I. Yentekakis, Proceedings of the 12<sup>th</sup> Hellenic Symposium of Catalysis, (2012).
- T. Papadam, G. Goula, I.V. Yentekakis, «Long-term operation stability tests of intermediate and high temperature Ni-based anodes' SOFCs directly fueled with simulated biogas mixtures», Proceedings of the 'International Conference on Hydrogen Production (ICH2P-11)', (2011).
- I.V. Yentekakis, G. Goula, T. Papadam, «Electricity production from wastewater treatment via a novel biogas-SOFC aided process», Proceedings of the 'International Conference on Solid State Ionics (SSI-16)', (2007).
- G. Goula, P. Katzourakis, N. Vakakis, T. Papadam, M. Konsolakis, I.V. Yentekakis, «Electrochemical K promotion of the Ir catalytic behavior during the reduction of the NO by C<sub>3</sub>H<sub>6</sub> under circumstances of different oxygen concentrations», Proceedings of the '6<sup>th</sup> Hellenic Scientific Conference of Chemical Engineering', (2007).
- G. Goula, T. Papadam, I.V. Yentekakis, «A new technology for the biogas energy exploitation», Proceedings of the '2<sup>nd</sup> Hellenic Conference on Alternative Fuels and Biofuels', (2007).
- I.V. Yentekakis, G. Goula, T. Papadam, « A novel biogas – fueled – SOFC aided process for direct production of electricity from wastewater treatment: Comparison of the performance of high and intermediate temperature SOFCs», Proceedings of International Conference 'International Conference of Computational Methods in Sciences and Engineering 2006 (ICCMSE)', (2006).

- G. Goula, I.V. Yentekakis, «A comparative study of the performances of high and intermediate temperature solid oxide fuel cells developed for the advanced exploitation of biogases», Proceedings of International Conference 'Protection and Restoration of the Environment VIII', (2006).
- I.V. Yentekakis, G. Goula, T. Papadam, N. Kalogerakis, D. Mantzavinos and M. Ninolakis, «A novel process for direct production of electricity and H<sub>2</sub> from municipal and industrial wastewater treatment», Proceedings of International Conference 'Protection and Restoration of the Environment VIII', (2006).
- I.V. Yentekakis, G. Goula, D. Mantzavinos, N. Kalogerakis, «Electric energy production from urban and industrial liquid-waste», Proceedings of the '2<sup>nd</sup> National Conference for Hydrogen Technologies' (2005) and magazine 'Modern Technical Review', Vol. of November, (2005).
- G. Goula, V. Kioussis, L. Nalbantian and I.V. Yentekakis, «Catalytic and electrocatalytic behaviour of Ni-based cermet anodes under internal dry reforming of CH<sub>4</sub>+CO<sub>2</sub> mixtures in SOFCs», Proceedings of the 'International Conference on Solid State Ionics (SSI-15)', (2005).
- G. Goula, V. Kioussis, I.V. Yentekakis, «Development and experimental studies of innovative biogas fuel cells», Proceedings of the '5<sup>th</sup> Hellenic Scientific Conference of Chemical Engineering', (2005).
- G. Goula, M. Ninolakis, D. Mantzavinos, N. Kalogerakis, I. Yentekakis, «A new process for the production of electric energy and/or H<sub>2</sub> from the treatment of urban and industrial wastes of varied COD», Proceedings of the '8<sup>th</sup> Hellenic Symposium of Catalysis', (2004).
- S. Liodakis, D. Bakirtzis, D. Gakis, G. Goula, S. Maridaki, «Evaluation of the retarding action of DAP [(NH<sub>4</sub>)<sub>2</sub>HPO<sub>4</sub>], AS [(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>], NaHCO<sub>3</sub>, NH<sub>4</sub>Br, in *PINUS BRUTIA*», Proceedings of the '1<sup>st</sup> Hellenic Conference of Thermal Analysis', (2002).

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## Conferences

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- Participation in the: 14<sup>th</sup> Hellenic Symposium of Catalysis (Patra, Greece, 13/10/2016-15/10/2016). 10<sup>th</sup> Hellenic Scientific Conference of Chemical Engineering (Patra, Greece, 4/6/15-6/6/15), 12<sup>o</sup> Hellenic Symposium of Catalysis (Georgioupoli, Chania, Crete, Greece, 25/10/2012-27/10/2012), 'International Conference on Hydrogen Production (ICH2P-11)' (Thessaloniki, Greece, 19/6/2011-22/6/2011), International Conference 'International Conference of Computational Methods in Sciences and Engineering 2006 (ICCMSE)' (Chania, Greece, 27/10/2006-1/11/2006), International Conference 'Protection and Restoration of the Environment VIII' (Chania, Greece, 3/7/2006-7/7/2006), 2<sup>nd</sup> National Conference for Hydrogen Technologies (Thessaloniki, Greece, 20/10/2005-22/10/2005), 'International Conference on Solid State Ionics (SSI-15)' (Baden-Baden, Germany, 17/7/2005-22/5/2005), 5<sup>th</sup> Hellenic Scientific Conference of Chemical Engineering (Thessaloniki, Greece, 26/5/2005-28/5/2005), 8<sup>th</sup> Hellenic Symposium of Catalysis, 'Catalysis and Renewable Sources of Energy - Challenges and Prospects' (Agia Napa, Cyprus, 30/10/2004-1/11/2004), 3<sup>rd</sup> Special Congress of the Greek Company of Operational Researches (E.E.E.E.)-'1<sup>st</sup> Meeting of Multicriteria Analysis of Decisions' (Chania, Crete, Greece, 30-31/10/2003), 1<sup>st</sup> Hellenic Conference of Thermal Analysis (Thessaloniki, Greece, September 2002), 3<sup>rd</sup> Hellenic Scientific Conference of Chemical Engineering (Athens, Greece, May 2001).

- Participation and help in the organisation of the conduct of the 12<sup>o</sup> Hellenic Symposium of Catalysis (Georgioupoli, Chania, Crete, Greece, 25/10/2012-27/10/2012).
- Participation and help in the organisation of the conduct of the 'Second European Bioremediation Conference' (Chania, Crete, Greece, 30/6/2003-4/7/2003).

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### **Participation in seminars**

- Attendance at a seminar about Second Chance Schools (Training tutors for second chance schools), ORAMA (02/07/2014 – 05/09/2014).
- Attendance at a seminar about educating adults and development of teaching skills, Panteion University of Social and Political Sciences (2013-2014).
- Attendance at the seminar 'Friendly environmental technologies during production and use of conventional fuels' (duration 60 hrs), organized by Technical University of Crete, as a part of the project 'Catalysis: a vital tool for the protection of the environment and energy production' funded by General Secretariat of Research and Technology of Greek Ministry of Development (1/10/2007-16/11/2007).

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### **Scholarships - Awards**

- Award 'Seal of Excellence'- European Commission for her project proposal submitted under the Horizon 2020's Marie Skłodowska-Curie actions: the project was evaluated and was scored as a high-quality project proposal in a highly competitive evaluation process (2017).
- Postdoctoral research program, Technical University of Crete, Chania, Greece (2016-2017)..
- Post graduate program 'Environmental quality control and management', Department of Environmental Engineering at the Technical University of Crete, Chania, Greece (2003).

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### **Language skills**

- Proficiency in English, University of Cambridge (Certificate of Proficiency in English).
- Proficiency in French ('Certificat de Langue Francaise' and DELF-Unites A1, A2, A3, A4).
- Good Knowledge of the Italian language.

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### **Computer skills**

- Operating systems: Windows, MS Office (Word, Excel, Powerpoint, Access, Internet Explorer), Linux, ASPEN.
- Very good knowledge of graphic applications software Origin Pro 8.
- Programming languages: FORTRAN 77 and MATLAB.