


Name:	Maria A. Goula	
Position:	Professor of Catalysis, Department of Chemical Engineering, UOWM	
Short CV:	<p>Maria A. Goula is Professor of Catalysis in the Department of Chemical Engineering and Director of the Laboratory of Fuels and Environmental Catalysis (LAFEC), of the University of Western Macedonia (UOWM). She is also a collaborating faculty member in the Hellenic Open University (HOU) for the MSc program entitled “Environmental Catalysis for Pollution Abatement and Clean Energy Production”.</p> <p>Prof. M.A. Goula obtained her diploma (Chemistry) in 1987 and her Ph.D. (Catalysis) in 1993, from the University of Patras (UOP). From 1993-1997 she worked as a Senior Researcher at the Chemical Process Engineering Research Institute (CPERI), and from 2001-2002 at the Institute for Solid Fuels Technology and Applications (ISFTA) - both of the Centre for Research and Technology Hellas (CERTH). From 2000-2004 she worked as an Adjunct Assistant Professor at the Departments of (i) Mechanical Engineering, (ii) Medicine, and (iii) Biochemistry and Biotechnology, of the University of Thessaly (UOT). In 2004 she was appointed as Assistant Professor at the Department of Environmental and Pollution Control Engineering (Technological Educational Institute of Western Macedonia TEIWM); the position became a permanent one in 2007. She was elected an Associate Professor in 2012 and full Professor in 2017.</p> <p>Prof. M.A. Goula is author or co-author of more than 90 research publications in Peer Reviewed International Journals with a total Impact Factor= 640.10 and average IF/paper= 7.11, which have received over 3532 citations (Scopus), giving her a Hirsch (h)-index= 32. She also has a large number of publications in peer reviewed international (> 154) and national (> 85) conference proceedings. She is on the Editorial Board of five International Scientific Journals (Chemistry/MDPI, International Journal of Environmental Engineering, Journal of Environment and Waste Management) and acted as Guest Editor for the International Scientific Journals Catalysts/ MDPI and Energies/MDPI. She acts as a regular reviewer in over 140 Scientific Journals (>7500 reviews). She also acts as research projects reviewer for HORIZON, Greek Secretariat for Research and Development, Science Fund of the Republic of Serbia, Cyprus Research Promotion Foundation (RPF), ERA.Net RUS Plus Innovation, American Chemical Society, Croatian Science Foundation (CSF), και Marie Curie FP7-PEOPLE</p> <p>Prof. M.A. Goula has participated at seven (7) European projects and acted as Coordinator or Team Leader at fifteen (15) National R&D projects. She has also been Coordinator at two (2) national projects, one (1) Interreg IRA, two (2) industrial R&D contracts (awarded by GEOHELLAS S.A. and PPC S.A.). She has also been awarded a research grant by the Centre for Catalysis and Separation of the Khalifa University of Science and Technology, United Arab Emirates. Prof. M.A. Goula has developed a network with leading Universities and Research Institutions abroad (Khalifa University of Science and Technology/UAE, University College London/UK, University of Surrey/UK, University of Zaragoza/Spain, Italian National Research Council/Italy, University of Milan/Italy, University of Bologna/Italy, University of Shanghai/China, Sichuan University /China, Beijing University of Chemical Technology/China, Cyprus University of Technology /Cyprus, Delft University of Technology (TU Delft)/Netherlands, University of Hamburg/Germany) and with academic and industrial collaborators in Greece (Technical University of Crete, UOP, UOT, CPERI/CERTH, HOU, GEOHELLAS S.A., HELBIO S. A., PPC S.A., and INTERGEO S.A.). She has co-supervised four (4) PhD students and is currently supervising six (6) more. She has also supervised >18 MSc (HOU) and >56 diploma dissertations. Prof. M.A. Goula has taught a wide variety of undergraduate subjects (>20), published numerous laboratorial handbooks and was the scientist in charge of the translation (in Greek) of ‘Air Pollution Control: A Design Approach’ by C.D. Cooper and F.C. Alley. The book forms part of the recommended reading lists for relevant courses at UOWM, UOT and Democritus University of Thrace.</p> <p>Prof. M.A. Goula also has extensive administrative experience as she served as: School Vice Dean (2007-2008), Head of Department (2004-2008), Vice Head of Department (2008-2016), Director of the Lignite Sector at the Centre of Research and Technology of TEIWM (2010-2012), as Member of TEIWM Committee for Economic & Research development (2005-2010), Member of the External Evaluation Committee (2016-Present), and as Member of the Graduate Studies Committee (2014-Present); the latter two Committees are formed at Departmental level.</p> <p>Prof. M.A. Goula has enjoyed research stays as invited Researcher at several excellent research centers e.g., Delft University of Technology (Netherlands), Khalifa University of Science and Technology (UAE), University of Aveiro (Portugal), the University of Surrey</p>	

	<p>(UK), the University of Zaragoza (Spain), the University of Cyprus, the University of Castilla-La Mancha (Spain), Beijing University of Chemical Technology (China) and the Ruhr-University Bochum (Germany).</p> <p>The research interests of Prof. M.A. Goula are focused on the fields of Heterogeneous Catalysis and, especially, in <u>materials synthesis and characterization, catalyst development and evaluation, and investigation of reaction kinetics and mechanisms</u>. Of particular interest is the investigation of the surface chemistry and structure of dispersed metallic systems and of reducible metal oxides and their mixtures. Materials are characterized using a combination of physicochemical techniques, including selective chemisorption of probe molecules, Temperature Programmed Desorption, Reduction, Hydrogenation and Oxidation (TPD, TPR, TPH and TPO), X-Ray Diffraction (XRD), FT-IR, Raman, X-ray Photoelectron Spectroscopy (XPS) and Scanning / Transmission electron microscopy (SEM/TEM). In parallel to catalyst development and testing, fundamental studies are made to identify the surface parameters, which determine the catalytic performance.</p> <p>The primary goal of Prof. M.A. Goula is the development of novel catalytic systems for: (i) Hydrogen/syngas production via (a) Glycerol Steam Reforming, (b) Biogas dry reforming, (c) Ethanol steam reforming, Bio-oil Steam Reforming (ii) Selective Catalytic Reduction (SCR) of NO_x present in the exhaust of lean-burn and diesel engines, (iii) Production of “green diesel” via the selective deoxygenation (SDO) of natural triglycerides, (iv) CO₂ hydrogenation for methane, methanol, higher hydrocarbons and higher alcohols production, (v) Methane oxidative coupling (vi) Catalytic pyrolysis of biomass agro-residues (vii) Experimental and theoretical studies of multiphase flows in porous media and transport phenomena, (viii) Biomass sustainability through Life Cycle Analysis</p>
<p>Selected Publications 2018-2023</p>	<ol style="list-style-type: none"> 1. Rudolph B., Tsiotsias A., Ehrhardt B., Gross S., Dolcet P., Haas S., Charisiou N.D., Goula M.A., Mascotto S., Nanoparticle exsolution from nanoporous perovskites for highly active and stable biogas dry reforming catalysts. <i>Advanced Science</i> (2023) 2205890 (IF = 17.521) 2. Tsiotsias A., Charisiou N.D., Harkou E., Hafeez S., Manos G., Constantinou A., AlKhoori A., Sebastian V., Hinder S.J., Baker M.A., Polychronopoulou K., Goula M.A., Enhancing CO₂ methanation over Ni catalysts supported on sol gel derived Pr₂O₃-CeO₂: En experimental and theoretical investigation. <i>Applied Catalysis B: Environmental</i> 318 (2022) 121836. (IF: 24.319) 3. Tsiotsias A., Ehrhardt B., Rudolph B., Nodari L., Kim S., Jung W., Charisiou N.D., Goula M.A., Mascotto S., Bimetallic Exsolved Heterostructures of Controlled Composition with Tunable Catalytic Properties. <i>ACS Nano</i> 16 (2022) 8904-8916. (IF = 18.027). 4. Aravani V.P., Sun H., Yang Z., Liu G., Wang W., Anagnostopoulos G., Syriopoulos G., Charisiou N.D., Goula M.A., Kornaros M., Papadakis V.G., Agricultural and livestock sector’s residues in Greece & China: Comparative qualitative and quantitative characterization for assessing their potential for biogas production. <i>Renewable and Sustainable Energy Reviews</i> 154 (2022) 111821. (IF = 16.779) 5. Siakavelas G.I., Charisiou N.D., AlKhoori S., AlKhoori A.A., Sebastian V., Hinder S.J., Baker M.A., Yentekakis I.V., Polychronopoulou K., Goula M.A., Highly selective and stable nickel catalysts supported on ceria promoted with Sm₂O₃, Pr₂O₃ and MgO for the CO₂ methanation. <i>Applied Catalysis B: Environmental</i> 282 (2021) 119562. (IF = 24.319)
<p>Research Projects 2018-2023</p>	<ol style="list-style-type: none"> 1. INTERREG IPA CROSS BORDER COOPERATION PROGRAMME "GREECE - REPUBLIC OF NORTH MACEDONIA 2014-2020": Across Border Educational and Technological innovation Hot-Spots/GEMS (2022-2023), Project’s Coordinator, Project Total Budget: 850.000€ (LAFEC’s Budget: 150.000€) 2. REGIONAL EXCELLENCE: Development of new innovative low carbon footprint energy technologies to enhance excellence in the Region of Western Macedonia (2021-2023), LAFEC’s Principal Investigator (PI), Project Total Budget: 400.000.000€ (LAFEC’s Budget: 270.000€) 3. BILATERAL AND MULTILATERAL R&T COOPERATION BETWEEN GREECE AND CHINA: Development of new catalysts for efficient de-NOX abatement of automobile exhaust purification (2019-2023), LAFEC’s Principal Investigator (PI), Project Total Budget: 400.000€ (LAFEC’s Budget: 140.000€) 4. BILATERAL AND MULTILATERAL R&T COOPERATION BETWEEN GREECE AND CHINA: Integrated management and exploitation of multi-dispersed agricultural residues – application to energy production (2019-2023), LAFEC’s Principal Investigator (PI), Project Total Budget: 400.000€ (LAFEC’s Budget: 150.000€) 5. RESEARCH - CREATE - INNOVATE: Innovative process of advanced exploitation of biogas and CO₂ emissions: Complete conversion to ethylene (2018-2022), LAFEC’s Principal Investigator (PI), Project Total Budget: 950.000€ (LAFEC’s Budget: 240.000€)
<p>Awards & Scholarships</p>	<p>Prof. M.A. Goula has been included in the top 2% of scientists worldwide in years 2019, 2020 & 2021, for her impact in the scientific field Energy/Physical Chemistry (Baas, Boyak, Ioannidis, University of Stanford).</p>