

## CURRICULUM VITAE

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## EDUCATION - TRAINING

### 11/2000 – 3/2002 Postdoctoral training

Department of Chemistry, Michigan State University, USA  
Project title: “*Clay Nanoparticle Reinforcement of Aerospace Polymers (Polymer-Clay Nanocomposites)*”. Funding Agency: NASA Glenn Research Laboratory  
Supervisor: Prof. T. J. Pinnavaia

### 1992 – 2000 Doctoral thesis

Department of Chemistry, University of Ioannina.  
Thesis title: “*Modification-Characterization of Zeolites and Evaluation in the Hydrocarbon Cracking Process*”  
Advisory committee: Prof. N.P. Evmiridis, Prof. I.A. Vasalos, Prof. P.I. Pomonis

### 4–12/1991 Postgraduate research-industrial training

Hydrocarbon Processing Department, Koninklijke/SHELL – Laboratorium,  
Amsterdam, The Netherlands.  
Postgraduate training on the development of kinetic models describing catalyst performance in Hydrocracking processes using SHELL modelling techniques and available pilot plant data.  
Supervisors: Ir. A.van Dijk - Ir. J.J.P. Biermann

### 1985 – 1990 B.Sc. Degree in Chemistry, Department of Chemistry, University of Ioannina

## APPOINTMENTS - WORK STATUS

9/2018 –today: Professor at Dept. of Chemistry, Aristotle University of Thessaloniki  
6/2014 –9/2018: Associate Professor at Dept. of Chemistry, Aristotle University of Thessaloniki  
8/2009 –6/2014: Assistant Professor at Dept. of Chemistry, Aristotle University of Thessaloniki  
6/2004 – 2009: Lecturer at Department of Chemistry, Aristotle University of Thessaloniki, Greece  
6/2004 – today: Collaborating Faculty Member - Researcher, CPERI/CERTH, Greece

- 3/2002 - 6/2004: Researcher D', Centre for Research and Technology-Hellas (CERTH), Greece  
11/2000 - 3/2002: Postdoctoral Fellow, Department of Chemistry, Michigan State University  
3/1998-10/2000: Director of Career Office, University of Ioannina  
8/1996 - 1/1998: Military service  
4-12/1991: Postgraduate research trainee, Koninklijke/SHELL-Laboratorium, The Netherlands

## SCIENTIFIC & RESEARCH EXPERTISE

### 1) Inorganic and porous nano-materials

Microporous and hierarchical zeolites, ordered mesoporous materials, metal nano-oxides, layered materials (clays, LDHs), hybrid organic-inorganic materials, carbon based (nano)porous materials, biochars. Applications as catalysts, sorbents and drug carriers.

### 2) Polymer (bio-based) nanocomposites

Polymer nanocomposites with advanced 1D, 2D and 3D inorganic nano-structures/particles, bio-based polymers using chemicals/ monomers from biomass, bio-based polymer composites with nano-cellulose and nano-lignin.

### 3) Heterogeneous catalysis

Synthesis, characterization, testing of new catalysts; process design and technoeconomical analysis; LCA; Catalytic fast pyrolysis of biomass, lignin, organic wastes, plastics to chemicals, fuels and LPG; Hydro-deoxygenation/isomerization of biomass/ lignin oils and algae lipids towards green fuels; Catalytic hydrogenolysis of cellulose and lignin; Catalytic upgrading (dehydration, isomerization, condensation, oxidation, hydrogenation) of biomass derived sugars, furans, acids, phenolics; Catalytic cracking of heavy petroleum feeds (FCC) and Fischer-Tropsch bio-waxes to gasoline and LPG; Epoxidation of ethylene/propylene; epoxidation of fatty acids and triglycerides.

### 4) Adsorption and catalysis for environmental remediation

Removal of inorganic and organic pollutants from aqueous streams;  
Deep desulfurization of gasoline/diesel fuels by adsorption/oxidation process under mild conditions; deNO<sub>x</sub>/DeN<sub>2</sub>O (previous work).

### 5) Biomass (lignocellulosic, lipid) and organic waste valorization to high added value fuels, chemicals, monomers, polymers

Hydrothermal (in neat water), mild acid and organosolv pretreatment of lignocellulosic biomass for selective fractionation and recovery of its components (cellulose, hemicellulose, lignin);  
Utilization of (nano)cellulose as polymer additive; enzymatic/acid hydrolysis of biomass (cellulose) to produce sugars (glucose) for the production of bioethanol or sugar-derived furans, acids, etc.;  
Utilization of lignin as polymer reactive additive and of derived phenolics, aromatics and cycloalkanes for the production of bio-based resins and biofuels;  
Fractionation/extraction of microalgae components to isolate lipids, proteins, carotene, etc. and utilization of residual carbohydrate biomass to produce bio-crude and aromatics.

### Green and Sustainable Chemistry

The principles of Green and Sustainable Chemistry are applied in all aspects of our research, from the design and synthesis of highly reactive and selective (nano)metal catalysts reducing the use of raw materials, energy and chemicals, to the utilization of biomass and waste organic sources for the production

of valuable bio-based chemicals, fuels and polymers, in line with the circular (bio)economy concept and the UN-Sustainable Development Goals.

## TEACHING & TRAINING ACTIVITY

### A. Taught and Laboratory Courses

- 1) 2018 - today: "Catalytic Processes" (Subject: Nanostructured and nanoporous catalysts, catalytic processes for the production of (bio)fuels, (bio)chemicals and petrochemical products, heterogeneous catalytic reaction mechanisms). Master's Program "Chemical Technology and Industrial Applications", Department of Chemistry / AUTH (co-teaching with E. Deligianni and A. Fotopoulos)
- 2) 2015 - today: "Green Chemistry", Undergraduate Curriculum, Department of Chemistry / AUTH (co-teaching with A. Zoumboulis and E. Peleka)
- 3) 2004 - 2017: "Advanced Chemical Technology" (Subject: Catalytic technologies for the production of (bio)fuels and petrochemical products). Master's Program, Department of Chemistry / AUTH (co-teaching with. K. Matis)
- 4) 2005 - today: "Chemical Processes", Undergraduate Curriculum, Department of Chemistry / AUTH (co-teaching with. K. Matis, P. Mavros - more recently with M. Kostoglou)
- 5) 2004 - today: Laboratory courses:
  - "Chemical Technology", Undergraduate Curriculum, 4th Semester, Dept. of Chemistry / AUTH
  - "Physical Processes", Undergraduate Curriculum, 6th Semester, Dept. of Chemistry / AUTH
  - "Laboratory of Industrial Processes", Undergraduate Curriculum, 7th Semester, Dept. of Chemistry
- 6) 11/09/2007 : "ME7 . Zeolites and Mesoporous Materials: Synthesis, Characterization and Applications in Catalysis , " 2-hrs course in the frame of Interdepartmental Master's Program " Catalysis and its Applications " , Coordinator Department of Chemistry , University of Athens (with. F. Pomonis and L. Nalbandian).
- 7) 6/10/2017: «Thermochemical and catalytic conversion of lignocellulosic biomass» 2-hrs course in the frame of the course "Bioprocess Engineering", Department of Civil, Environmental and Natural Resources Engineering, Lulea University of Technology.

### B. Teaching in Training Seminars, Workshops and Summer Schools

- 1) 3/9/2019: "Biomass Refinery: Production of Green Fuels and Chemicals via Upgrading of Hemicellulose, Cellulose and Lignin", in the frame of "1<sup>st</sup> KIT-AUTH Summer School on Clean Energy and Sustainability, co-organized by Karlsruhe Institute of Technology and Aristotle University of Thessaloniki, Possidi, Greece, 2-6 September 2019.
- 2) 29/5/2018: "Whole biomass refinery: production of green fuels and chemicals via upgrading of hemicellulose, cellulose and lignin", in the frame of the Summer school "Valorization of agro-industrial residues and side streams for the development of a sustainable bio-economy", LIFECAB - LIFE16 ENV/IT/000179, Agricultural University of Athens, 28 -29 May 2018.
- 3) 29/8/2016: "Valorization of Lignin by Catalytic Fast Pyrolysis" in the frame of the 2<sup>nd</sup> Summer School "Catalysis Research for Biomass Utilization in Modern Biorefineries", organized by COST Action FP1306, Leipzig, Germany, 29-30 August 2016.
- 4) 7/5/2015: "Catalytic fast pyrolysis of lignocellulosic biomass" in the frame of the 1<sup>st</sup> Summer School "Green Chemistry in the framework of lignocellulosic biorefineries", organized by COST Action FP1306, La Rochelle, France, 5-7 May 2015.
- 5) 24/10/2011: «Effect of supported metal particle nano-size on catalytic activity: Case studies of Ag-nanoparticles for ethylene epoxidation and Ru-nanoparticles for N<sub>2</sub>O decomposition», University of Leipzig, Postgraduate programme BuildMoNa, October 24-25, 2011.
- 6) 12/4/2010 : "Determination porous characteristics - specific surface area , volume and pore size of micro / mesoporous materials by the method of N<sub>2</sub> adsorption" Seminar for graduate students and

young researchers in " Introduction to Instrumental Analysis Techniques" , CERTH , Thessaloniki, 12-13 April 2010.

- 7) 18/9/2009: «Effect of supported metal particle nano-size on catalytic activity: Case studies of Ag-nanoparticles for ethylene epoxidation and Ru-nanoparticles for N<sub>2</sub>O decomposition», University of Leipzig, Postgraduate programme BuildMoNa, September 17-18, 2009.
- 8) 18/5/2007: «Clean fuels from the catalytic cracking of Fischer-Tropsch waxes», CERTH Seminar under the INTERREG III A / CARDS, Greece - FYROM 'Development of a knowledge network of educational and research Institutes active in environmental issues for the development of a common cooperation framework for the harmonization with EU legislation and know-how transfer'. Thessaloniki, CERTH, May 14-16, 2007.
- 9) 31/01/2006: "Remediation Catalytic Technologies: Removal of nitrogen oxides (NO<sub>x</sub> and N<sub>2</sub>O) from industrial flue gas via selective catalytic reduction and catalytic decomposition", Department of Chemistry, Aristotle University. Theoretical courses / seminars within the Training Network entitled " Advanced Methods for the Treatment of Wastewater and Air Pollutants" , Coordinator Department of Chemistry, Aristotle University. Funding: GSRT (Ministry of Development).
- 10) 23/07/2004 "Catalytic materials for the cracking of petroleum fractions", Hellenic Petroleum SA . / Refineries Aspropyrgou.  
13/12/2004 "Nanostructured mesoporous materials for the catalytic cracking of heavy oil fractions" University of Ioannina.  
07/12/2005 "Catalytic materials for biomass pyrolysis", CERTH / CPERI  
Teaching theoretical courses / seminars in the frame of the Training Network entitled "Energy Technologies for Sustainable Development", Coordinator CERTH / CPERI . Funding: GSRT (Ministry of Development)

### C. Supervision of Postdoctoral Researchers

- 1) Antigoni Margellou (2017 - present): "*Processing / fractionation of lignocellulosic biomass and catalytic conversion of hemicellulose and lignin to useful chemical compounds and fuels*", EPANEK-NSRF 2014-2020, Department of Chemistry AUTH.
- 2) Dimitrios Giliopoulos (2015 - today): "*Encapsulation of the active substance Paclitaxel in hybrid carriers of porous nanoparticles and microparticles / biodegradable aliphatic polyesters and study of its rate of release*", IKY, "Strengthening Postdoctoral Researchers / Researchers ", NSRF 2014-2020, Department of Chemistry, AUTH.
- 3) Dimitrios Giannakoudakis (2017-present): "*Development of novel nanostructured composites / materials for adsorption and (photo) catalytic applications*", Department of Chemistry, AUTH.
- 4) Georgios Giannopoulos (2017 - 2019): "*Protocols for Analysis of Lignocellulosic Biomass*", Interreg Greece - Bulgaria 2017-19, Department of Chemistry, AUTH.
- 5) Ioannis Charistidis (2017 – 2019): "*Fast pyrolysis and catalytic fast pyrolysis of lignocellulosic biomass and various solid wastes*" EPANEK-NSRF 2014-2020, Department of Chemistry AUTH.
- 6) Stamatia Karakoulia (2009-2019): "*Development, characterization and evaluation of nanoporous and layered materials and (nano) oxides for catalytic applications in the conversion of hydrocarbons and biomass*" CPERI / CERTH (in collaboration with Dr. Angelos Lappas)

### D. Supervision of Doctoral Theses

- 1) Christina Pappa (2018 – today): Thesis title: «*Lignin valorization for the production of new polymers and composite materials*», Department of Chemistry, Aristotle University of Thessaloniki (AUTH).
- 2) Andreas Gusev (2015 – today): Thesis title: «*Study of activity and deactivation of ZSM-5 zeolitic additives in the process of catalytic pyrolysis of petroleum fractions (FCC)*», Department of Chemistry AUTH and CPERI/CERTH, Dr. Eleni Iliopoulou, Member of Advisory Committee.

- 3) Asimina Marianou (2014 – 2019): Thesis title: «*Production of high-added value chemicals from biomass by advanced catalytic processes*», Department of Chemistry AUTH and CPERI/CERTH, Dr. Angelos Lappas, Member of Advisory Committee.
- 4) Polykarpos Lazaridis (2014 – 2018): Thesis title: «*Lignocellulosic biomass valorization for the production of chemicals and fuels by catalytic hydrolysis, hydrogenation and fast pyrolysis*», Department of Chemistry, AUTH.
- 5) Ioannis Charisteidis (2009 - 2016): Thesis title: "*Epoxidation of propylene in the gas phase by transition metal catalysts*" Department of Chemistry, Aristotle University.
- 6) Dimitrios Giliopoulos (2009 - 2015): Thesis Title: "Development of novel nanocomposites of epoxy resins with silicate nanostructures" Department of Chemistry, Aristotle University.
- 7) Christos Nitsos (2007-2013) Thesis Title: "*Hydrothermal pretreatment and enzymatic hydrolysis of lignocellulosic biomass*" Co- supervision (member supervising committee) with Prof. Konstantinos Matis - Supervisor (Department of Chemistry, Aristotle University ) and Prof. Theodora Choli – Papadopoulou.
- 8) Stamatia Karakoulia (2005-2009): Thesis Title: "*Development of Mixed Metal Oxides Mesostructures via Self-assembly Systems as Catalysts for the Oxidative Dehydrogenation alkanes to Light Alkene*". Co- supervision with Prof. Angeliki Lemonidou - Supervisor (Department of Chemical Engineering, Aristotle University) within the research program PENED2003.
- 9) Panagiotis Xidas (2005-2009) Thesis Title: "Synthesis, characterization and property study of innovative epoxy polymer - clay nanocomposite materials." Co- supervision with Prof. Dimitrios Gournis - Supervisor (Department of Materials Science & Engineering, University of Ioannina) and Prof. Dimitrios Bikiaris (Department of Chemistry AUTH) within the research program PENED2003.
- 10) Apostolos Fotopoulos (2004-2007) Thesis Title: "Development of silver catalysts for the epoxidation of olefins" Co-supervision with Prof. Konstantinos Matis - Supervisor (Department of Chemistry AUTH).
- 11) Vassileios Komvokis (2004-2009) Thesis Title: "Synthesis, Characterization and Evaluation of New Nanostructured Catalytic Materials for the reduction of nitrogen oxides from industrial flue gases". Co- supervision with Prof. Iacovos Vasalos - Supervisor (Department of Chemical Engineering, Aristotle University).

#### **E. Supervision of Master's Theses**

- 1) Athanasia Akritidou (2017–2019): Thesis Title: "Catalytic Concentration of Phenol with Carbonyl Compounds", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 2) Evangelia Mitsiakou (2016 – 2018): Thesis Title: "Catalytic Hydrogenation of Furfural to High-Value-Added Compounds", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 3) Konstantinos Karagiannidis (2016 - 2018): Thesis Title: "Modification of lignin and development of composite epoxy – lignin materials", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 4) Harikleia Tsaridou (2015 - 2016): Thesis Title: "Hydroisomerization of n-hexane with platinum (Pt) catalysts supported on micro / mesoporous aluminosilicate materials", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 5) Aikaterini Panteli (2014 - 2015): Thesis Title: "Hydrolytic Hydrogenation of Cellulose with Micro / Medium Carbon-supported Noble Metal Catalysts", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 6) Stylianos Torofias (2013 - 2014): Thesis Title: "Glucose Conversion to High-Value Added Chemicals by Using Acid and Basic Solid Catalysts", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".

- 7) Polykarpos Lazaridis (2012 - 2104): Thesis Title: "Fast pyrolysis of lignin and lignocellulosic biomass using zeolite catalysts on a Py / GC-MS system", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 8) Kalliopi Avramidou (2012 - 2013): Thesis Title: "Hydrolysis of cellulose and lignocellulosic biomass using solid acid catalysts", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 9) Eleni Liakakou (2011 – 2013): Thesis Title: "Converting syngas to alcohols using micro / mesoporous carbons promoted with transition metals", in collaboration with Dr. Eleni Heracelous (CPERI/CERTH), Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 10) Evangelia Mitraka (2011-2013) Thesis Title: "Selective catalytic reduction of nitrogen oxides by hydrocarbons using zirconia based catalysts promoted by tungsten oxide and palladium", in collaboration with Dr . Eleni Iliopoulou (CPERI / CERTH), Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 11) Zinovia Skoufa (2010-2013) Thesis Title: "Development of nanostructured mesoporous mixed oxides catalysts for the reaction of oxidative dehydrogenation of ethane ", in collaboration with Prof. Angeliki Lemonidou (Department of Chemical Engineering / AUTH), Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 12) Maria Tsiomi (2010-2012) Thesis Title: "Synthesis and study of properties of epoxy nanocomposites with carbon nanotubes ", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 13) Olga Makridou (2010-11): Thesis Title: "Synthesis, characterization and study of the adsorptive capacity of new hybrid organic - inorganic porous silicate materials" Co-supervision with Prof. Anastasios Zouboulis (supervisor), Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 14) Christos Nitsos (2007-2008) Thesis Title: "Synthesis and characterization of micro / mesoporous silicates as catalyst substrates" in the frame of the Master's Program "Catalysis and Environmental Protection", Faculty of Science & Technology, the Hellenic Open University (HOU).
- 15) Maria Marti (2005-2006) Thesis Title: "Development of new catalytic systems of supported Ru for catalytic decomposition of N<sub>2</sub>O», Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".
- 16) Kleoniki Drakaki (2005-2006) Thesis Title: "Production of liquid fuels by catalytic hydrotreating of paraffinic waxes derived from biomass pyrolysis", Postgraduate Programme of the Department of Chemistry, AUTH/Specialization in "Chemical Technology".

#### **F. Supervision of diploma theses**

- 2004 – today: Supervision of more than 35 diploma theses of undergraduate students, Department of Chemistry AUTH
- 2002 – 2004: Supervision of 4 diploma theses of undergraduate students as Researcher at the Chemical Process Engineering Research Institute, Centre for Research and Technology Hellas (CPERI/CERTH).

**RESEARCH PROJECTS – RESEARCH & TRAINING NETWORKS*****National Research Projects***

- 1) “*Development of innovative nanocellulose-reinforced composite wood products with advanced hydrophobic and antimicrobial properties (CELLAGLUE)*” Aristotle University of Thessaloniki (Coordinator), CHIMAR S.A., NANOTYPOS S.A. Funding: «Special Actions "Aquaculture" - "Industrial Materials" - "Open Innovation In Culture“», co-financed by EU - European Regional Development Fund and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation (EPAnEK 2014-2020) (project code: T6YBII-00341), 2020-2023. Total budget 595,567 euros; budget for AUTH: 212,950 Euros. **Project Coordinator and Principal Investigator for AUTH.**
- 2) “*Advanced nanoporous materials for the deep desulfurization of liquid fuels via adsorption in mild conditions (DeSulfur)*” CPERI/CERTH (Coordinator), Aristotle University of Thessaloniki (AUTH), University of Crete, ELPE S.A. Funding: Action “RESEARCH – CREATE – INNOVATE B’ CALL” co-financed by EU- European Regional Development Fund and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation (EPAnEK 2014-2020) (project code: T2EAK-01976), 2020-2023. Total budget 991,539 euros; budget for AUTH: 262,000 Euros. **Principal Investigator for AUTH.**
- 3) “*Production of green transportation fuels and energy from microalgae cultivated in greenhouse drainage water (ALGA-FUELS)*” CPERI/CERTH (Coordinator), Department of Chemistry/Aristotle University of Thessaloniki (AUTH), Department of Agriculture/AUTH, ALFA WOOD S.A., ELPE S.A. Funding: Action “RESEARCH – CREATE – INNOVATE B’ CALL” co-financed by EU-European Regional Development Fund and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation (EPAnEK 2014-2020) (project code: T2EAK-00041), 2020-2023. Total budget 988,460 euros; budget for Dept. of Chemistry/AUTH: 230,000 Euros. **Principal Investigator for Dept. of Chemistry/AUTH.**
- 4) “*Valorization of waste and agro-industrial by-products for saving resources and producing of chemicals, fuels and materials*”, within the frame of the “Research Infrastructure for Waste and Sustainable Management of Natural Resources (INVALOR)”, with University of Patras as the coordinating pole of the Network-Infrastructure and the participation of 19 Laboratories/groups from 7 Greek Universities and Research Organizations. Funding: Ministry of Finance & Development and European Union-European Regional Development Fund, Programme EPANEK 2014-2020, 2017-2020 (budget for AUTH: 274,712 Euros, Project Coordinator for AUTH Prof. A. Zouboulis) **Team leader and Main Researcher.**
- 5) “*Nanostructured Hierarchical Zeolites for Sustainable Production of Second Generation Biofuels (HierZeo4Biofuel)*” Aristotle University of Thessaloniki, Funding EU-Greek Ministry of Education/ Program ESPA2007-2013/Action EXCELLENCE, 2014-2015 (total budget 264,000 Euros) **Project Coordinator & Principal Investigator.**
- 6) “*New Lightweight and Nanotechnology Enhanced Bio-composites from Lignocellulosic Materials (FIBRACOM)*”, CHIMAR S.A. (Coordinator), Aristotle University of Thessaloniki, Centre for Renewable Energy Sources and Saving (CRES). Funding: Ministry of Development/GSRT- Action “Bilater Cooperation Greece-China”, 2013-2015 (total budget 413,220 euros; budget for Dept. of Chemistry/AUTH: 90,000 Euros) **Principal Investigator for AUTH.**
- 7) “*High performance nanocomposite materials: Reinforcement of polymers with advanced carbon and silica nanostructures (NANOCOMP)*” Aristotle University of Thessaloniki (coordinator), FORTH-Crete, University of Ioannina. Funding EU-Greek Ministry of Education/ Program ESPA2007-2013/Action THALIS, 2012-2015 (total budget 600,000 Euros) **Project Coordinator & Principal Investigator.**

- 8) *"New catalytic processes for the production of second generation biofuels (CAT-BIOFUEL)"* CPERI/CERTH (coordinator), University of Patras, National Technical University of Athens. Funding EU-Greek Ministry of Education/ Program ESPA2007-2013/Action THALIS, 2012-2015 (total budget 600,000 Euros) **Project Coordinator in collaboration with Dr. A. Lappas, P.I. (from CERTH), and Main Researcher.**
- 9) *"Polymer nanocomposites using reactive 1D, 2D and 3D carbon nanostructures (PC-NANOCOMP)"* Aristotle University of Thessaloniki (in cooperation with Pennsylvania State University). Funding EU-Greek Ministry of Education, Program ESPA2007-2013/ Action "Support of Postdoctoral Research", 2012-2014 (total budget 130,000 Euros) **Project Coordinator & Principal Investigator (with Dr. P. Xidas as the supported Postdoc).**
- 10) *"Catalytic nanomaterials for bioethanol production from lignocellulosic biomass"* Aristotle University of Thessaloniki (Bilateral cooperation with University of Bucharest). Funding: Ministry of Development/GSRT- Action "Bilateral Cooperation Greece-Romania", 2012-2013 (Budget for Greek side/AUTH: 15.000 euros). **Project Coordinator & Principal Investigator.**
- 11) *"Novel inorganic nanostructures for the development of polymer based nanocomposites with improved properties (NanoFill)"* Plastika Kritis S.A. (coordinator), University of Crete, Aristotle University of Thessaloniki (AUTH), University of Ioannina. Funding: ESPA/Greek Ministry of Education/GSRT-Action SYNERGASIA-I, 2011-2013 (total budget: 729,400 Euros; budget for AUTH: 162,000 Euros) **Principal Investigator for AUTH.**
- 12) *"Development of novel nanostructured catalytic materials for environmental and energy applications using Greek minerals as raw materials (NanoMgO)"* CPERI/CERTH (coordinator), University of Ioannina, Grecian Magnesite S.A., CERECO S.A. Funding: ESPA/Greek Ministry of Education/GSRT- Action SYNERGASIA-I, 2011-2013 (total budget: 704,000 Euros) **Project Coordinator in collaboration with Dr. A. Lappas (Principal Investigator from CERTH), and Main Researcher.**
- 13) *"Development of nanostructured micro-/mesoporous catalytic materials for the pyrolysis of biomass towards the production of chemicals and biofuels"*, Aristotle University of Thessaloniki, Funding EPEAEK-PYTHAGORAS-II/Greek Ministry of Education, 2005-2007 (50,000 Euros), **Project Coordinator & Principal Investigator.**
- 14) *"Development of nanostructured mixed oxides from Layered Double Hydroxides as catalysts for deNOx processes and fine chemicals production"*, Aristotle University of Thessaloniki (coordinator), CERECO S.A. (bilateral cooperation with University of Bucharest). Funding: Ministry of Development/GSRT- Action "Bilateral Cooperation Greece-Romania 2005-2007", 2006-2008 (budget for Greek side: 23.500 ευρώ) **Project Coordinator & Principal Investigator.**
- 15) *"Development of novel polymer – clay nanocomposites with improved mechanical and barrier properties"*, University of Ioannina (coordinator), Aristotle University of Thessaloniki (AUTH), CAMPOS S.A., CPERI/CERTH. Funding EPAN(PENED2003)/Greek Ministry of Development, 2005-2008. (Total budget: 138,000 euros; AUTH budget: 38,000 euros) **Principal Investigator for AUTH.**
- 16) *"Self-organized mesophases and mesostructures for catalytic applications"*, University of Ioannina (coordinator), CPERI/CERTH, University of Crete, CERECO S.A. Funding: Ministry of Development/GSRT, EPAN/PENED2003, 2005-2008 (Total project budget: 200,000 euros; CPERI/CERTH budget: 45.000 euros) **Principal Investigator for CPERI/CERTH.**
- 17) *"Treatment of industrial effluents for the removal of waste with the use of novel micro-/mesoporous adsorptive materials and ceramic membranes"* Aristotle University of Thessaloniki (coordinator, P.I. Prof. K.A. Matis), University of Western Macedonia, CPERI/CERTH. Funding EPAN(PENED2003)/Greek Ministry of Development, 2005-2008 (Total project budget: 92,160 Euros; AUTH budget: 41,598 Euros). **Main Researcher of AUTH team.**
- 18) *"Environment-friendly Refining/deNOx Processes utilizing Innovative Nanostructured Micro/Mesoporous Catalytic Materials"*, CPERI/CERTH (coordinator, P.I. Prof. I.A. Vasalos), SIMTEC (in cooperation with Argonne National Laboratory, USA). Funding GSRT/Greek Ministry



- of Development- Action "Greece-USA Bilateral Program", 2004-2006 (Budget for Greek side: 60.000 euros) **Collaborating Researcher of CPERI/CERTH.**
- 19) "*Application of Catalyst Evaluation Technologies for Petroleum Industry*", CERTH / CPERI . Funding: GSRT, Program AKMON, 3rd KPS. Specific task: "Characterization of acidic and redox properties cracking catalysts", 2002-2005. **Researcher .**
- 20) "*Optimization of refinery processes via development and application of new catalysts* " Partners: FORTH / CPERI , University of Ioannina , NTUA , University of Patras, ELDA . Funding: GSRT-EPET-II. Specific task: "Synthesis and Characterization of New Catalysts based on metal-modified ZSM-5 zeolite and testing in the dehydrogenation of propane and the cracking of gas-oil" , March 1999 - October 2000. **Researcher .**
- 21) "*Interaction between vanadium and transition metals in catalysts for cracking of hydrocarbons* " , Institution: Department of Chemistry , University of Ioannina. Funding : GSRT- PENED '94 . Specific task: "Synthesis and Characterization of Catalysts based on transition metal exchanged zeolite Y and modified with vanadium ," Jan. 1998 - Sept. 1998. **Postgraduate researcher.**
- 22) "*Increasing the Competitiveness Greek Refineries* " Partners: University of Ioannina, FORTH / CPERI (coordinator) , FORTH / ICE-HT , ELDA , EKO , MOTOR OIL. Funding: EU - GSRT (STRIDE-HELLAS Project No. 48) . Specific Task: "Synthesis , Modification and Characterization of zeolite ZSM-5 for use as catalytic material", July 1992 - December 1993. **Postgraduate researcher.**
- 23) "*Synthesis and characterization of catalysts with zeolitic structure* " Department of Chemistry , University of Ioannina. Funding: GSRT- PENED'89 . Specific Task: "Modification Y type zeolite by ion-exchange methods and ( hydro ) thermal treatment and characterization of the composition and structure " , April 1992 - June 1993. **Postgraduate researcher.**

#### **European and International Research Projects**

- 24) "*Flexible and resilient integrated biofuel processes for competitive production of green renewable jet and shipping fuels (FLEXI-GREEN FUELS)*" Project coordination: Bremerhaven University of Applied Sciences (BHV) (Germany), AUTH as partner (Greece; 324,291 Euros) and other 11 EU academic, research and industry partners. Funding: H2020 (LC-SC3-RES-1-2019-2020), 2021-2023. **Principal Investigator of AUTH**
- 25) "*European Sustainable BIObased nanoMATERIALS Community (BIOMAC)*" Project Coordination: AUTH (Prof. D. Bikiaris), AUTH partner 1,101,250 Euros, and other 32 EU academic, research and industry partners. Funding: H2020 (H2020-NMBP-TO-IND-2018-2020, DT-NMBP-04-2020, IA), 2021-2024. **Group leader and Main researcher of AUTH team.**
- 26) "*A novel technology for producing bio-based synthetic textile fibres from biomass-derived furanic monomers (ECOLASTANE)*" Project Coordination: Asociacion Murciana Industrias Quimicas (Spain), CPERI/CERTH (Greece; 530,000 Euros, P.I. Dr. A. Lappas), and other 6 EU partners, Funding: EU-FP7 project (FP7-SME-2012, project No. 298619), 2013-2015. **Collaborating Researcher.**
- 27) "*Reinforcement of Engineering Polymers for Aerospace Applications: Development of high performance polymer nanocomposites using as filler novel 2- and 3- dimensional silicate porous matrices, layered silicates or hybrid silicate-carbon nanotubes additives*" Department of Chemistry, Aristotle University of Thessaloniki. Funding: European Space Agency (ESA), 95,000 euro, 2008-09. **Project Coordinator & Principal Investigator.**
- 28) "*Renewable fuels for advanced powertrains (RENEW)*" –Subtask: *Development of novel mesoporous and partially crystalline zeolite-based materials as catalysts for upgrading of biomass-based paraffinic feedstocks.* Project coordinator: Volkswagen AG with 40 partners including CPERI/CERTH (Prof. I. Vasalos, Dr. A. Lappas). Funding: EU - FP6, Priority 6.1.ii / Integrated Project (IP), 2004-2008. **Collaborating Researcher of CPERI/CERTH.**
- 29) "*Clay nanoparticle reinforcement of aerospace polymers*" -Task: *Synthesis, Characterization and Testing of Epoxy Polymer – Clay Nanocomposites*", Michigan State University, USA, Primary

Investigator Prof. T.J. Pinnavaia, Funding NASA-John Glenn Research Laboratory (200.000 \$), Nov. 2000 – March 2002. **Post-doctoral researcher.**

- 30) “*Development of a method for the re-use of waste-waters of photo-finishing processes and the recovery of the removed harmful compounds*”. Funding EU (Environment), Project coordinator: University of Erlangen, Germany – *Subtask: Synthesis and Characterization of Zeolitic materials as adsorbents of harmful organic compounds*”, University of Ioannina (coordinator Prof. N. Evmiridis), Nov. 1994 – July 1995. **Postgraduate researcher.**

### **European and National Networks**

- 31) “*Green*” employment in the management of biowastes (*Green\_Crew*), Municipality of Serres (Coordinator), Aristotle University of Thessaloniki, Municipality of Nestos, Municipality of Municipality of Blagoevgrad, Bulgaria. Funding: EU-European Regional Development Fund, Υπηρεσία Διαχείρισης Προγράμματος Εδαφικής Συνεργασίας “Interreg V-A Ελλάδα - Βουλγαρία” 2014 – 2020 (total budget 542,467 Euros, AUTH budget 138,791 euros), 2017-2019 (*Coordinator for AUTH*).
- 32) *COST – European Cooperation in the field of Scientific and Technical Research: Action CA18220: “European network of FURan based chemicals and materials FOR a Sustainable development (FUR4Sustain)”*, 2019-2022 (*Member of Management Committee; participation in WG1: Developing FDCA synthetic routes*).
- 33) *COST – European Cooperation in the field of Scientific and Technical Research: Action CA17128: “Establishment of a Pan-European Network on the Sustainable Valorisation of Lignin (LignoCOST)”*, 2018-2021 (*Member of Management Committee and Science Communication Manager*).
- 34) *COST – European Cooperation in the field of Scientific and Technical Research: Action FP1306: “Valorisation of lignocellulosic biomass side streams for sustainable production of chemicals, materials & fuels using low environmental impact technologies (LIGNOVAL)”*, 2014-2017 (*Vice-chair and Member of Management Committee*).
- 35) *COST – European Cooperation in the field of Scientific and Technical Research: Action TD1203: “Food waste valorisation for sustainable chemicals, materials & fuels (EUBis)”*, 2012-2016 (*Substitute Member of Management Committee for Greece*).
- 36) *COST – European Cooperation in the field of Scientific and Technical Research: Action CM0903: “Utilisation of Biomass for Sustainable Fuels & Chemicals (UBIOCHEM)”*, 2009-2013 (Participation in WG1: Primary conversion of lignocellulosic feedstocks and Leader of WG2: Conversion of Biomass into energy. *Member of Management Committee*).
- 37) *ENMIX – European Nanoporous Materials Institute of Excellence: 2010-today (member of the CPERI/CERTH participating team)*
- 38) *COST – European Cooperation in the field of Scientific and Technical Research: Action D36: “Molecular structure-performance relationships at the surface of functional materials”*, 2005-2011 (*Member of Management Committee*).
- 39) “*In-situ Study and Development of Processes involving Nanoporous Solids (INSIDE\_PORes)*”, NoE funded Network of Excellence (FP6), Project coordinator: NSCR Demokritos, 2004-2008 (*researcher-member of the CPERI/CERTH team*).
- 40) *COST – European Cooperation in the field of Scientific and Technical Research: Action D24: “Sustainable Chemical Processes: Stereoselective Transition Metal-Catalysed Reactions”*, 2002 – 2006 (Research cooperation with Prof. Vasile Parvulescu from Work Group D24/0007/02 “Synthesis and application of new ligands for asymmetric heterogeneous catalysis”. *Member of Management Committee*).
- 41) “*CO-ordination of Nanostructured Catalytic Oxides Research and Development in Europe (CONCORDE)*”, Coordinated Action funded by EC (FP6), 2003-2005 (*researcher, member of the AUTH team – responsible Prof. A. Lemonidou*).
- 42) “*Energy Technologies for Sustainable Development*” Partners: CERTH / CPERI (coordinator), AUTH, NTUA, University of Athens, University of Thessaly, University of Patras, FORTH / ICE-HT, Hellenic Petroleum SA, HELECTOR, SIMTEC LTD. Funding: GSRT-EPAN: Action 8.3.6.

Human Networks for Research and Technological Training, Budget. 180,000 euro, 2003-2005 (coordination in collaboration with Prof. I.A. Vasalos).

## RESEARCH VISITS & TRAINING ABROAD

- 1) **Luleå University of Technology**, Biochemical Process Engineering, Division of Chemical Engineering, Department of Civil, Environmental and Natural Resources Engineering, Sweden (Prof. Paul Christakopoulos and Prof. Ulrika Rova): Short Stay (24/9 - 7/10/2017) for obtaining experience on the Organosolv/steam explosion pilot plant for the processing/fractionation of lignocellulose biomass, as well as for discussing joint experiments / publications on lignin production and catalytic conversion to high value chemicals and products, and for submitting joint applications for research projects.
- 2) **University of Bucharest**, Faculty of Chemistry (Prof. Vasile Parvulescu): 2 short stays (1 week each, June 2007 and November 2007) for obtaining experience on advanced catalytic systems (heterogeneous catalysis) and on specialized characterization techniques of solid catalysts. The visits took place in the frame of Bilateral Greece – Romania research programmes.
- 3) **Argonne National Laboratory**, Chemical Sciences and Engineering Division (Dr. Chris Marshal): 2 short stays (1 week each, June 2005 and March 2006) for obtaining experience on advanced catalytic technologies and the technique of Temperature-programmed reduction of Metal Catalysts in combination with X-ray Absorption Spectroscopy (XAS). The visits took place in the context of Bilateral Greece – USA research programme.
- 4) **Michigan State University**, Department of Chemistry (Prof. T.J. Pinnavaia): 2 short stays (1 week each, June 2005 and March 2006) for obtaining experience on the methodologies for the synthesis of mesoporous materials and polymer-clay nanocomposites. The visits took place in the context of Bilateral Greece – USA research programme.

## OTHER SCIENTIFIC ACTIVITIES

2008 – today: *Evaluator for the promotion of Faculty members of Greek and Foreign Universities*

- Election committee member, for Associate Professor (tenure position) on the subject of “Structure and Synthesis of Solid Catalysts”, Hellenic Open University (18-5-2018).
- Election committee member, Tenure, D. Lambropoulou, “Chemistry of Environment”, Department of Chemistry, AUTH (18-9-2017)
- External Evaluator of the academic qualifications of D.Sc. (Tech.) Atte Aho for a docentship (adjunct professor position) in Catalyst characterization and testing, Faculty of Science and Engineering, Åbo Akademi Atte Aho (September 2016).
- External Evaluator of Dr. Kiriaki Chrissopoulou’s promotion from the rank of Associate Application Scientist (ELE) to the rank of Researcher C’ at the Institute of Electronic Structure and Laser in Crete (November 2016).
- External Advisor on Research in the Promotion process of Senior Lecturer Pegie Cool to Professor, at the Department of Chemistry, University of Antwerp, Belgium (May 2011).
- Μέλος Εκλεκτορικού Σώματος για Θέση Λέκτορα με γνωστικό αντικείμενο «Χημεία και Τεχνολογία Τροφίμων», Τμήμα Χημείας ΑΠΘ, 24-11-2008.
- Μέλος Εκλεκτορικού Σώματος για Θέση Λέκτορα με γνωστικό αντικείμενο «Χημεία και Τεχνολογία Χρωμάτων», Τμήμα Χημείας ΑΠΘ, 20-10-2008.

2009 – today: *Evaluator of research projects for foreing organizations:*

- Belgium: Agency: FWO Panels (2019-2021)
- Belgium: Agency: Funds for Scientific Research /FWO (2009-2018).
- Romania: Agency: The Executive Agency for Higher Education, Research, Development and Innovation Funding - UEFISCDI (PCE2016) (Oct/November 2016)
- Poland: Agency: Foundation for Polish Science (Homing Plus Programme) (February 2013).
- Czech Republic: Agency: Czech Science Foundation (2011, 2012, 2013).
- Portugal: Agency: Portuguese Foundation for Science and Technology (FCT Grant Schemes) (2012).
- Romania: Agency: The Executive Agency for Higher Education, Research, Development and Innovation Funding (Funding Application for Joint Applied Research Projects) (2012)
- Belgium: University of Antwerp/Research Council, Concerted Research Projects (2010, 2018).
- Belgium: KU Leuven (2014, 2019, 2020).
- Cyprus: Research Promotion Foundation (RPF): Framework Programme for Research, Technological Development and Innovation 2009-2010 (2009).

2004 – today: *Evaluator for European Commission projects: Horizon 2020, Framework Programme 6 & 7 (FP6 & FP7)*

- NMP, ENERGY

2012 – today: *Evaluator of research projects for Greek organizations:*

- ΕΛΙΔΕΚ: ΥΠΟΤΡΟΦΙΕΣ ΕΛΙΔΕΚ 1ης Προκήρυξης Ερευνητικών Έργων για την επίσχυση Μεταδιδακτορικών Ερευνητών/ τριών (2017)
- ΕΛΙΔΕΚ: ΥΠΟΤΡΟΦΙΕΣ ΕΛΙΔΕΚ ΓΙΑ ΥΠΟΨΗΦΙΟΥΣ ΔΙΔΑΚΤΟΡΕΣ (ΥΔ) – 1<sup>η</sup> Προκήρυξη (2017)
- General Secretariat for Research and Technology: ESPA2007-2013/Action "Bilateral Greece-China R&T Cooperation 2012-2014". Research proposals in the field of "Energy" (2012).
- Hellenic Open University: Funding Scheme: "Demokritus-II". Application-proposal: Development of solid catalysts for biodiesel production (2012).

2011 – today: *Member of Evaluation Committees of Foreign Universities*

- International Expert in "Materials Science" domain, in the First Exercise of Research Assessment in Romanian Universities, organized by the Executive Agency for Higher Education and Research Funding within the frame of the program "Doctorate in Universities of Excellence", financed by European Social Funds (2011).

2004 – today: *Reviewer in international scientific journals:*

Chemical Society Reviews, Energy & Environmental Science, Green Chemistry, RSC Advances, Catalysis Science and Technology, Journal of Materials Chemistry, Journal of the American Chemical Society, ACS Applied Applied Materials & Interfaces, ACS Sustainable Chemistry & Engineering, ACS Catalysis, Applied Materials & Interfaces, Energy & Fuels, ChemSusChem, ChemCatChem, ChemisrtySelect, Advanced Sustainable Systems, Catalysts, Frontiers in Chemistry, Langmuir, Fuel, Applied Catalysis B: Environmental, Applied Catalysis A: General, Molecular Catalysis, Journal

of Catalysis, Catalysis Today, Catalysis Communications, Microporous and Mesoporous Materials, Bioresource Technology, Journal of Analytical and Applied Pyrolysis, Biotechnology for Biofuels, Biomass & Bioenergy, Bioresources, Journal of Materials Science, Composites Science and Technology, Materials Letters, Materials Science & Engineering B, Applied Clay Science, Fuels, European Polymer Journal, Chemical Engineering Journal, Separation Science & Technology, International Journal of Environment and Waste Management, Desalination, Fuel Processing Technology and others.

#### MEMBER OF SCIENTIFIC ASSOCIATIONS

- 1) European Chemical Society (EuChemS); Greek delegate in the Division of Green and Sustainable Chemistry
- 2) Association of Greek Chemists
- 3) American Chemical Society (ACS)
- 4) Hellenic Catalysis Society (Founding member and member of management committee since 2006)
- 5) Hellenic Green Chemistry Network
- 6) International Zeolite Association (IZA)
- 7) International Mesostructured Materials Association (IMMA)

#### LIST OF PUBLISHED WORK

##### The list of published work includes:

- A) Doctoral Thesis
- B) Participation in the writing of educational/training textbooks
- C) Edited books & journal special issues
- D) Book chapters
- E) Publications in international peer-reviewed journals and book series – ISI
- F) Patents
- G) Publications in National Conference Proceedings & Book of Abstracts

##### A) Doctoral Thesis

K.S. Triantafyllidis "Modification, characterization and testing of zeolites in hydrocarbon cracking", University of Ioannina (2000).

##### B) Educational books (in Greek)

1. Τίτλος: «Στοιχεία Χημικών Διεργασιών», Π. Μαύρος, Κ. Μάτης, Κ. Τριανταφυλλίδης. Εκδόσεις Τζιόλα (ISBN 978-960-418-193-3), Θεσσαλονίκη 2009.
2. Τίτλος: «Εργαστηριακές Ασκήσεις Χημικής Τεχνολογίας», Συμμετοχή στην συγγραφή του βιβλίου με το Κεφάλαιο ΣΤ1. «Προσρόφιση Αερίων – προσδιορισμός ειδικής επιφάνειας πορωδών υλικών (Μέθοδος BET)», Εκδόσεις Τζιόλα (ISBN 978-960-418-194-0), Θεσσαλονίκη 2009.
3. Τίτλος: «Στοιχεία Χημικών Διεργασιών», Κ. Μάτης, Π. Μαύρος, Κ. Τριανταφυλλίδης. Έκδοση: Υπηρεσία Δημοσιευμάτων ΑΠΘ (Θεσσαλονίκη, 2007).

### **C) Edited books & journal special issues**

1. K. Triantafyllidis, D. Giannakoudakis, Co-guest editors for Special Issue *Nanomaterials* (MDPI) with the title "Nanostructured Composite and Hybrid Materials for Pollution Remediation and Bio-Waste Valorization", 2021; [https://www.mdpi.com/journal/nanomaterials/special\\_issues/bio-waste](https://www.mdpi.com/journal/nanomaterials/special_issues/bio-waste)
2. K. Triantafyllidis, R. Luque, C. Len, Co-guest editors for Special Issue of *Frontiers in Chemistry* with the title "Nano-(bio)catalysis in lignocellulosic biomass valorization". <https://www.frontiersin.org/research-topics/6419/nano-biocatalysis-in-lignocellulosic-biomass-valorization>, 2018.
3. K. Triantafyllidis, R. Luque, Co-guest editors for Virtual Special Issue of *ChemCatChem* (Wiley) with the title "Valorization of Lignocellulosic Biomass Side Streams for Sustainable Production of Chemicals, Materials & Fuels using Low Environmental Impact Technologies" as part of the activities of the COST Action FP1306 "Lignoal", 2018. [http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1867-3899/homepage/2491\\_lignoal.html](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1867-3899/homepage/2491_lignoal.html)
4. K. Triantafyllidis, A. Zabaniotou, A. Marinas, R. Sheldon, Co-guest editors for Special Issue of *Catalysis Today* (Elsevier) with the title "UBIOCHEM-III: Sustainable production of fuels/energy, materials and chemicals from biomass", 2014. <http://dx.doi.org/10.1016/j.cattod.2013.12.030>
5. K. Triantafyllidis, A. Lappas, M. Stöcker, Co-guest editors of the book "The role of catalysis for the sustainable production of bio-fuels and bio-chemicals", ISBN 978-0-444-56330-9, Elsevier B.V., 1st Edition, 2013; <https://doi.org/10.1016/C2011-0-04285-0>
6. K. Triantafyllidis, K.A. Matis, Co-guest editors for the Special Issue «Innovations in Adsorption Technology» in the *International Journal of Environmental Technology and Management* (IJETM), Inderscience Enterprises Ltd, 2010; <https://www.inderscience.com/mobile/inauthors/cfp.php?id=895>

### **D) Book Chapters**

1. "State-of-the-art in biomass fast pyrolysis using acidic catalysts: direct comparison between microporous zeolites, mesoporous aluminosilicates and hierarchical zeolites", K.S. Triantafyllidis, S.D. Stefanidis, S.A. Karakoulia, A. Pineda, A. Margellou, K.G. Kalogiannis, E.F. Iliopoulou, A.A. Lappas, Chapter 5 in "Biomass and Biowaste - New Chemical Products from Old", Eds. Alina M. Balu and Araceli García Nuñez, ISBN: 978-3-11-053815-1, De Gruyter, 2020 <https://doi.org/10.1515/9783110538151>
2. "Nanocatalysis in the Fast Pyrolysis of Lignocellulosic Biomass", Eleni F. Iliopoulou, Polykarpos A. Lazaridis, and Kostas S. Triantafyllidis, Chapter 27 in "Nanotechnology in Catalysis - Applications in the Chemical Industry, Energy Development, and Environment Protection", Eds. Bert Sels, Marcel Van de Voorde, 2017 Wiley-VCH Verlag GmbH & Co. KGaA, Print ISBN: 978-3-527-33914-3; e-PDF ISBN: 978-3-527-69981-0; <https://doi.org/10.1002/9783527699827.ch27>
3. "Mesoporous Zeolite Catalysts for Biomass Conversion to Fuels and Chemicals" Chapter 15, Kostas S. Triantafyllidis, Eleni F. Iliopoulou, Stamatia A. Karakoulia, Christos K. Nitsos, Angelos A. Lappas, in "Mesoporous Zeolites: Preparation, Characterization and Applications", Eds. Javier García-Martínez and Kunhao Li, ISBN: 978-3-527-33574-9, Wiley, 2015. <https://doi.org/10.1002/9783527673957.ch15>.
4. "The Role of Catalytic Pretreatment in Biomass Valorization Toward Fuels and Chemicals", Chapter 7, Christos K. Nitsos, Chrysa M. Mihailof, Konstantinos A. Matis, Angelos A. Lappas, Kostas S. Triantafyllidis, in "The role of catalysis for the sustainable production of bio-fuels and bio-chemicals", Eds. K.S. Triantafyllidis, A.A. Lappas, M. Stöcker, ISBN 978-0-444-56330-9, Elsevier B.V., 1st Edition, 2013; <https://doi.org/10.1016/B978-0-444-56330-9.00007-3>
5. "Chemical Functionalization of Carbon Nanotubes for dispersion in epoxy matrices", Chapter 5, D.J. Giliopoulos, K.S. Triantafyllidis, D. Gournis, in "CARBON NANOTUBE ENHANCED AEROSPACE COMPOSITE MATERIALS", A. Paipetis and V. Kostopoulos (Eds.), Springer, The Netherlands, 2013 (ISBN 978-94-007-4246-8); [https://doi.org/10.1007/978-94-007-4246-8\\_5](https://doi.org/10.1007/978-94-007-4246-8_5)
6. "Applying the Techniques on Materials II", Chapter 6 - 6.5. Electrochemical Impedance Spectroscopy Measurements for the Corrosion Behaviour Evaluation of Epoxy: (Organo) Clays Nanocomposite Coatings. P. Spathis, D. Merachtsaki, K. Triantafyllidis, P. Giannakoudakis and P. Xidas, in

- "Conservation Science for the Cultural Heritage" Lecture Notes in Chemistry 79, E. A. Varella (ed.), Springer-Verlag, Berlin Heidelberg 2013; [https://doi.org/10.1007/978-3-642-30985-4\\_6](https://doi.org/10.1007/978-3-642-30985-4_6)
7. "Catalytic pyrolysis of biomass" A.A. Lappas, E.F. Iliopoulou, K.G. Kalogiannis, K.S. Triantafyllidis, in "Processes for the production and energetical exploitation of gaseous, liquid and solid biofuels", edited by the Hellenic Association of Chemical Engineers, 2013.
  8. "Zeolites for deNOx applications" Chapter 6, K.S. Triantafyllidis, V.I. Parvulescu, in "Zeolites in Chemical Engineering" edited by Harald H. Holzapfel, Verlag ProcessEng Engineering GmbH, 2011 (ISBN: 978-3-902655-08-0).

#### **D. Publications in international peer-reviewed journals and book series – ISI**

- 1 Zhao, D. Y., Rodriguez-Padron, D., Triantafyllidis, K. S., Wang, Y. T., Luque, R. & Len, C. Microwave-Assisted Oxidation of Hydroxymethyl Furfural to Added-Value Compounds over a Ruthenium-Based Catalyst. *Acs Sustainable Chemistry & Engineering* **8**, 3091-3102, doi:<https://doi.org/10.1021/acssuschemeng.9b05656> (2020).
- 2 Wang, Y. T., Zhao, D. Y., Triantafyllidis, K. S., Ouyang, W. Y., Luque, R. & Len, C. Microwave-assisted catalytic upgrading of bio-based furfuryl alcohol to alkyl levulinate over commercial non-metal activated carbon. *Molecular Catalysis* **480**, 110630, doi:<https://doi.org/10.1016/j.mcat.2019.110630> (2020).
- 3 Rekos, K., Kampouraki, Z. C., Panou, C., Baspanelou, A., Triantafyllidis, K. & Deliyanni, E. Adsorption of DBT and 4,6-DMDBT on nanoporous activated carbons: the role of surface chemistry and the solvent. *Environmental Science and Pollution Research*, doi:<https://doi.org/10.1007/s11356-020-08242-0> (2020).
- 4 Gusev, A. A., Psarras, A. C., Triantafyllidis, K. S., Lappas, A. A., Diddams, P. A. & Vasalos, I. A. ZSM-5 Additive Deactivation with Nickel and Vanadium Metals in the Fluid Catalytic Cracking (FCC) Process. *Industrial & Engineering Chemistry Research* **59**, 2631-2641, doi:<https://doi.org/10.1021/acs.iecr.9b04819> (2020).
- 5 Giliopoulos, D., Zamboulis, A., Giannakoudakis, D., Bikiaris, D. & Triantafyllidis, K. Polymer/Metal Organic Framework (MOF) Nanocomposites for Biomedical Applications. *Molecules* **25**, 185, doi:<https://doi.org/10.3390/molecules25010185> (2020).
- 6 Geczko, A., Giannakoudakis, D. A., Triantafyllidis, K., Elshaer, M. R., Rodriguez-Aguado, E. & Bashkova, S. Mechanistic insights into acetaminophen removal on cashew nut shell biomass-derived activated carbons. *Environmental Science and Pollution Research*, doi:<https://doi.org/10.1007/s11356-019-07562-0> (2020).
- 7 Charisteidis, I. D. & Triantafyllidis, K. S. Propylene epoxidation by molecular oxygen using supported silver catalysts: Effect of support type, preparation method and promotion with alkali chloride and/or steam. *Catalysis Today* **355**, 654-664, doi:<https://doi.org/10.1016/j.cattod.2019.06.057> (2020).
- 8 Psarras, A. C., Michailof, C. M., Iliopoulou, E. F., Kalogiannis, K. G., Lappas, A. A., Heracleous, E. & Triantafyllidis, K. S. Acetic acid conversion reactions on basic and acidic catalysts under biomass fast pyrolysis conditions. *Molecular Catalysis* **465**, 33-42, doi:<https://doi.org/10.1016/j.mcat.2018.12.012> (2019).
- 9 Plomaritis, A., Giliopoulos, D., Triantafyllidis, K., Kostoglou, M. & Karapantsios, T. D. Mesoporous Silica SBA-15 Particles in a Detergent Solution as Abrasive and Coating Material for Household Care Cleaning Products. *Colloid Interfac.* **3**, 12, doi:<https://doi.org/10.3390/colloids3010012> (2019).
- 10 Nitsos, C. K., Lazaridis, P. A., Mach-Aigner, A., Matis, K. A. & Triantafyllidis, K. S. Enhancing Lignocellulosic Biomass Hydrolysis by Hydrothermal Pretreatment, Extraction of Surface Lignin, Wet Milling and Production of Cellulolytic Enzymes. *Chemsuschem* **12**, 1179-1195, doi:<https://doi.org/10.1002/cssc.201802597> (2019).
- 11 Marianou, A. A., Michailof, C. C., Ipsakis, D., Triantafyllidis, K. & Lappas, A. A. Cellulose conversion into lactic acid over supported HPA catalysts. *Green Chemistry* **21**, 6161-6178, doi:<https://doi.org/10.1039/c9gc02622c> (2019).

- 12 Margellou, A. & Triantafyllidis, K. S. Catalytic Transfer Hydrogenolysis Reactions for Lignin Valorization to Fuels and Chemicals. *Catalysts* **9**, 43 (2019).
- 13 Kampouraki, Z. C., Giannakoudakis, D. A., Triantafyllidis, K. S. & Deliyanni, E. A. Catalytic oxidative desulfurization of a 4,6-DMDBT containing model fuel by metal-free activated carbons: the key role of surface chemistry. *Green Chemistry* **21**, 6685-6698, doi:<https://doi.org/10.1039/c9gc03234g> (2019).
- 14 Iliopoulou, E. F., Triantafyllidis, K. S. & Lappas, A. A. Overview of catalytic upgrading of biomass pyrolysis vapors toward the production of fuels and high-value chemicals. *Wiley Interdisciplinary Reviews: Energy and Environment* **8**, e322, doi:<https://doi.org/10.1002/wene.322> (2019).
- 15 Giannakoudakis, D. A., Nair, V., Khan, A., Deliyanni, E. A., Colmenares, J. C. & Triantafyllidis, K. S. Additive-free photo-assisted selective partial oxidation at ambient conditions of 5-hydroxymethylfurfural by manganese (IV) oxide nanorods. *Appl. Catal. B- Environ.* **256**, 117803, doi:<https://doi.org/10.1016/j.apcatb.2019.117803> (2019).
- 16 Fattahi, N., Triantafyllidis, K., Luque, R. & Ramazani, A. Zeolite-Based Catalysts: A Valuable Approach toward Ester Bond Formation. *Catalysts* **9**, 758, doi:<https://doi.org/10.3390/catal9090758> (2019).
- 17 Charisteidis, I., Lazaridis, P., Fotopoulos, A., Pachatouridou, E., Matsakas, L., Rova, U., Christakopoulos, P. & Triantafyllidis, K. Catalytic Fast Pyrolysis of Lignin Isolated by Hybrid Organosolv-Steam Explosion Pretreatment of Hardwood and Softwood Biomass for the Production of Phenolics and Aromatics. *Catalysts* **9**, 935, doi:<https://doi.org/10.3390/catal9110935> (2019).
- 18 Wang, Y., Prinsen, P., Triantafyllidis, K. S., Karakoulia, S. A., Yezpez, A., Len, C. & Luque, R. Batch versus Continuous Flow Performance of Supported Mono- and Bimetallic Nickel Catalysts for Catalytic Transfer Hydrogenation of Furfural in Isopropanol. *ChemCatChem* **10**, 3459-3468, doi:<https://doi.org/10.1002/cctc.201800530> (2018).
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## F) Patents

1. Thomas J. Pinnavaia, Konstantinos Triantafyllidis, Peter C. LeBaron "Composite compositions with barrier properties and methods for the preparation thereof" US Patent 7,074,469. Issued: 11-07-2006.
2. Thomas J. Pinnavaia, Konstantinos Triantafyllidis, Peter C. LeBaron "Composite compositions with barrier properties and methods for the preparation thereof" WO/2004/085529. Publication date: 07.10.2004.

## G. Conference proceedings

More than 200 presentations in national and international conferences.