

## CURRICULUM VITAE

### **Dr. Konstantinos S. Triantafyllidis**

Assistant Professor

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**Nationality:** Greek    **Age:** 42

### **Areas of Expertise**

- Synthesis and Characterization of Inorganic Materials:  
Microporous (zeolitic) and Mesoporous (MCM-41, HMS, SBA-15, MCF, etc) materials, Clays, Supported-metal catalysts, Layered doubled hydroxides and related mixed oxides.
- Hybrid organic-inorganic nanostructured materials, Polymer nanocomposites with nanostructured clay, silica and carbon materials.
- Heterogeneous & Environmental Catalysis for (Bio)Fuels, Chemicals & Energy:  
Hydrocarbon conversion (e.g. gasoil cracking, dehydrogenation of short alkanes), DeNO<sub>x</sub> / DeSO<sub>x</sub>, Selective oxidations (ethylene / propylene epoxidation, oxidative dehydrogenation of propane), Catalytic pyrolysis of biomass and upgrading of bio-oil.
- Biomass thermochemical and enzymatic conversion to fuels and chemicals.
- Adsorption/separation processes (environmental applications)

### **Education**

- Postdoctoral Associate, Michigan State University, USA, 2000-2001
- Ph.D. in Chemistry, University of Ioannina, Greece, 1999
- Postgraduate training, Koninklijke/SHELL-Laboratorium, Amsterdam, The Netherlands, 1991
- BSc in Chemistry, University of Ioannina, Greece, 1990

### **Appointments / Experience**

- 2009 – present: Assistant Professor at Aristotle University of Thessaloniki, Greece
- 2004 – present: Collaborating Researcher, CPERI/CERTH, Greece
- 2004 – 2009: Lecturer at Aristotle University of Thessaloniki, Greece
- 2002 - 2004: Researcher, Centre for Research and Technology-Hellas (CERTH), Greece
- 2000-2001: Postdoctoral Fellow, Michigan State University
- 1998-2000: Director of Liaison and Career Office, University of Ioannina
- 1993-1996: Teaching Assistant, Department of Chemistry, University of Ioannina
- 1991: Postgraduate research trainee, Koninklijke/SHELL-Laboratorium, The Netherlands

## Memberships

- International Zeolite Association (IZA)
- International Mesoporous Materials Association (IMMA)
- National Hellenic Association of Chemists
- National Hellenic Association of Heterogeneous Catalysis

## Collaborations

Prof. Thomas J. Pinnavaia (Michigan State University), Prof. Vasile Parvulescu (University of Bucharest), Prof. Roger Glaser (University of Leipzig), Dr. Chris Marshall (Argonne National Laboratory), Prof. Milan Hronec (Slovak University of Technology), Prof. P. Rudolf (Zernike Institute for Advanced Materials, University of Groningen), Dr. Carsten Stoecker (Sumitomo Chemical Company), and many other collaborators in Greece and abroad.

## Research networks

- Member of the Management Committee of European Networks -COST Actions D24, D36, CM0903.
- “In-situ Study and Development of Processes involving Nanoporous Solids” (INSIDE\_PORes), NoE in FP6.
- European Nanoporous Materials Institute of Excellence (ENMIX).
- CO-ordination of Nanostructured Catalytic Oxides Research and Development in Europe (CONCORDE)”, CA in FP6.

## Research experience – R&D projects:

Scientific coordinator in 8 projects. Main researcher in other 15 projects.

## Representative R&D projects:

- 1) “*Development of novel nanostructured catalytic materials for environmental and energy applications using Greek minerals as raw materials*” CPERI/CERTH, Funding ESPA/Greek Ministry of Development, 2011-2014 (700,000 Euros), Coordinator and Main Researcher.
- 2) “*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), 2008-09 (100,000 Euros), Coordinator and Main Researcher.
- 3) “*Novel inorganic nanostructures for the development of polymer based nanocomposites with improved properties*” Aristotle University of Thessaloniki, Funding ESPA/Greek Ministry of Development, 2011-2014 (AUTH budget 180,000 euros, Total budget of project 765,000 Euros). Coordinator and Main Researcher of AUTH team.
- 4) “*Development of nanostructured micro-/mesoporous catalytic materials for the pyrolysis of biomass towards the production of chemicals and biofuels*”, Funding EPEAEK/Greek Ministry of Education, 2005-2007 (50,000 Euros), Coordinator and Main Researcher.
- 5) “*Development of novel polymer – clay nanocomposites with improved mechanical and barrier properties*”, Funding EPAN(PENED2003)/Greek Ministry of Development, 2005-2008.

- 6) “Treatment of industrial effluents for the removal of waste with the use of novel micro-/mesoporous adsorptive materials and ceramic membranes” Funding EPAN(PENED2003)/Greek Ministry of Development, 2005-2008.
- 7) “In-situ Study and Development of Processes involving Nanoporous Solids (INSIDE\_PORes), EU funded Network of Excellence (FP6), 2004-2008.
- 8) “Environment-friendly Refining / deNO<sub>x</sub> Processes utilizing Innovative Nanostructured Micro/Mesoporous Catalytic Materials”, Funding GSRT/Greek Min. of Development, 2004-2006.
- 9) COST – European Cooperation in the field of Scientific and Technical Research: Action D24: “Sustainable Chemical Processes: Stereoselective Transition Metal-Catalysed Reactions”, 2002 – 2007 (Member of Management Committee of COST Action D24).
- 10) “Renewable fuels for advanced powertrains (RENEW)” –Subtask: Development of novel mesoporous and partially crystalline zeolite-based materials as catalysts for upgrading of paraffinic feedstocks”, EU funded Integrated Project (IP) – FP6, Priority 6.1.ii, 2004-2008.
- 11) “CO-ordination of Nanostructured Catalytic Oxides Research and Development in Europe (CONCORDE)”, EU funded Coordinated Action (FP6), 2003-2005.
- 12) “Energy Technologies for Sustainable Development” at CPERI/CERTH, Funding GSRT/Greek Ministry of Development, (EPAN: Human Networks for Research & Technology Training), 2003-2005.
- 13) “Application of catalyst evaluation technology for the petroleum refining industry”, Funding GSRT/Greek Ministry of Development, (EPAN: AKMON), 2002-2005.
- 14) “Synthesis, Characterization and Testing of Epoxy Polymer – Clay Nanocomposites”, Michigan State University, USA, Funding NASA-John Glenn Research Laboratory, Nov. 2000 – March 2002.

### **Published work – presentations:**

40 papers in international refereed journals – book series

20 papers in refereed conference proceedings

70 oral and poster presentations in international scientific conferences

1 US patent

Book Chapter on ‘Zeolites for deNO<sub>x</sub> application’

Guest Editor in Special Issue of IJETM on ‘Innovations in adsorption technology’

### **Other scientific activities**

- Reviewer of European R&D projects in Framework Programmes 6 & 7 (in the areas of “Energy” and “Nanosciences & Nanotechnology/Materials/Processes”) and for Research Organizations of Cyprus, Belgium and Romania.

- Reviewer in International Journals: Chemical Society Reviews, Journal of the American Chemical Society, Langmuir, Applied Catalysis B: Environmental, Applied Catalysis A: General, Catalysis Today, Microporous and Mesoporous Materials, Journal of Materials Chemistry, European Polymer Journal, and others.

**Publications in international refereed journals – book series**

1. Xidas, P.I., Triantafyllidis\*, K.S. Effect of the type of alkylammonium ion clay modifier on the structure and thermal/mechanical properties of glassy and rubbery epoxy-clay nanocomposites *European Polymer Journal* **46**, 404-417 (2010).
2. Triantafyllidis\*, K.S., Peleka, E.N., Komvokis, V.G., Mavros, P.P. Iron-modified hydrotalcite-like materials as highly efficient phosphate sorbents. *Journal of Colloid and Interface Science* **342**, 427–436 (2010).
3. Park, D. H., Kim, S. S., Wang, H., Pinnavaia\*, T. J., Papapetrou, M. C., Tappas, A. A. & Triantafyllidis\*, K. S. Selective petroleum refining over a zeolite catalyst with small intracrystal mesopores. *Angewandte Chemie - International Edition* **48**, 7645-7648 (2009).
4. Komvokis, V. G., Marnellos, G. E., Vasalos, I. A. & Triantafyllidis\*, K. S. Effect of pretreatment and regeneration conditions of Ru/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> catalysts for N<sub>2</sub>O decomposition and/or reduction in O<sub>2</sub>-rich atmospheres and in the presence of NO<sub>x</sub>, SO<sub>2</sub> and H<sub>2</sub>O. *Applied Catalysis B: Environmental* **89**, 627-634 (2009).
5. Asouhidou, D. D., Triantafyllidis, K. S., Lazaridis\*, N. K. & Matis, K. A. Adsorption of Remazol Red 3BS from aqueous solutions using APTES- and cyclodextrin-modified HMS-type mesoporous silicas. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* **346**, 83-90 (2009).
6. Karakouliia, S. A., Triantafyllidis\*, K. S., Tsilomelekis, G., Boghosian, S. & Lemonidou\*, A. A. Propane oxidative dehydrogenation over vanadia catalysts supported on mesoporous silicas with varying pore structure and size. *Catalysis Today* **141**, 245-253 (2009).
7. Giannakas, A., Xidas, P., Triantafyllidis, K. S., Katsoulidis, A. & Ladavos\*, A. Preparation and Characterization of Polymer/Organosilicate Nanocomposites Based on Unmodified LDPE. *Journal of Applied Polymer Science* **114**, 83-89 (2009).
8. Asouhidou, D. D., Triantafyllidis\*, K. S., Lazaridis\*, N. K., Matis, K. A., Kim, S. S. & Pinnavaia, T. J. Sorption of reactive dyes from aqueous solutions by ordered hexagonal and disordered mesoporous carbons. *Microporous and Mesoporous Materials* **117**, 257-267 (2009).
9. Triantafyllidis\*, K. S., Xidas, P. I. & Pinnavaia, T. J. Alternative synthetic routes to epoxy polymer - Clay nanocomposites using organic or mixed-ion clays modified by protonated di/triamines (Jeffamines). *Macromolecular Symposia* **267**, 41-46 (2008).
10. Triantafyllidis\*, K. S., Karakouliia, S. A., Gournis, D., Delimitis, A., Nalbandian, L., Maccallini, E. & Rudolf, P. Formation of carbon nanotubes on iron/cobalt oxides supported on zeolite-Y: Effect of zeolite textural properties and particle morphology. *Microporous and Mesoporous Materials* **110**, 128-140 (2008).
11. Neatu, F., Besnea, M., Komvokis, V. G., Genet, J. P., Michelet\*, V., Triantafyllidis\*, K. S. & Parvulescu\*, V. I. Hydrotalcite docked Rh-TPPTS complexes as efficient catalysts for the arylation of 2-cyclohexen-1-one in neat water. *Catalysis Today* **139**, 161-167 (2008).
12. Karakouliia, S. A., Triantafyllidis\*, K. S. & Lemonidou\*, A. A. Preparation and characterization of vanadia catalysts supported on non-porous, microporous and mesoporous silicates for oxidative dehydrogenation of propane (ODP). *Microporous and Mesoporous Materials* **110**, 157-166 (2008).

13. Triantafyllidis\*, K. S., Iliopoulou, E. F., Antonakou, E. V., Lappas, A. A., Wang, H. & Pinnavaia, T. J. Hydrothermally stable mesoporous aluminosilicates (MSU-S) assembled from zeolite seeds as catalysts for biomass pyrolysis. *Microporous and Mesoporous Materials* **99**, 132-139 (2007).
14. Triantafyllidis\*, K. S., Pinnavaia, T. J., Iosifidis, A. & Pomonis\*, P. J. Specific surface area and I-point evidence for microporosity in nanostructured MSU-S aluminosilicates assembled from zeolite seeds. *Journal of Materials Chemistry* **17**, 3630-3638 (2007).
15. Komvokis, V. G., Iliopoulou, E. F., Vasalos, I. A., Triantafyllidis\*, K. S. & Marshall, C. L. Development of optimized Cu-ZSM-5 deNO<sub>x</sub> catalytic materials both for HC-SCR applications and as FCC catalytic additives. *Applied Catalysis A-General* **325**, 345-352 (2007).
16. Katranas, T. K., Triantafyllidis, K. S., Vlessidis\*, A. G. & Evmiridis, N. P. Propane reactions over faujasite structure zeolites type-X and USY: Effect of zeolite silica over alumina ratio, strength of acidity and kind of exchanged metal ion. *Catalysis Letters* **118**, 79-85 (2007).
17. Iliopoulou, E. F., Antonakou, E. V., Karakoulia, S. A., Vasalos, I. A., Lappas, A. A. & Triantafyllidis\*, K. S. Catalytic conversion of biomass pyrolysis products by mesoporous materials: Effect of steam stability and acidity of Al-MCM-41 catalysts. *Chemical Engineering Journal* **134**, 51-57 (2007).
18. Fotopoulos, A. P. & Triantafyllidis\*, K. S. Ethylene epoxidation on Ag catalysts supported on non-porous, microporous and mesoporous silicates. *Catalysis Today* **127**, 148-156 (2007).
19. Bikiaris\*, D. N., Chrissafis, K., Paraskevopoulos, K. M., Triantafyllidis, K. S. & Antonakou, E. V. Investigation of thermal degradation mechanism of an aliphatic polyester using pyrolysis-gas chromatography-mass spectrometry and a kinetic study of the effect of the amount of polymerisation catalyst. *Polymer Degradation and Stability* **92**, 525-536 (2007).
20. Triantafyllidis\*, K. S., Komvokis, V. G., Papapetrou, M. C., Vasalos, I. A. & Lappas, A. A. Microporous and mesoporous aluminosilicates as catalysts for the cracking of Fischer-Tropsch waxes towards the production of "clean" bio-fuels. *Studies in Surface Science and Catalysis* **170**, 1344-1350 (2007).
21. Triantafyllidis\*, K. S., Lappas, A. A., Vasalos, I. A., Liu, Y., Wang, H. & Pinnavaia, T. J. Gas-oil cracking activity of hydrothermally stable aluminosilicate mesostructures (MSU-S) assembled from zeolite seeds: Effect of the type of framework structure and porosity. *Catalysis Today* **112**, 33-36 (2006).
22. Triantafyllidis, K. S., LeBaron, P. C., Park, I. & Pinnavaia\*, T. J. Epoxy-clay fabric film composites with unprecedented oxygen-barrier properties. *Chemistry of Materials* **18**, 4393-4398 (2006).
23. Katranas, T. K., Triantafyllidis, K. S., Vlessidis, A. G. & Evmiridis\*, N. P. Dehydrogenation of propane over Ga and Cr modified, "fresh" and steamed, MFI-type zeolites, *Studies in Surface Science and Catalysis* **155**, 347-354 (2005).
24. Karakoulia, S., Jankovic, L., Dimos, K., Gournis, D. & Triantafyllidis\*, K. Formation of carbon nanotubes on iron/cobalt-modified zeolites: Effect of zeolite framework/pore structure and method of modification, *Studies in Surface Science and Catalysis* **158**, 391-398 (2005).

25. Triantafyllidis\*, K. S., Lappas, A. A., Vasalos, I. A., Liu, Y., Pinnavaia, T. J. Gas-oil Cracking Activity and Product Selectivity of the Hydrothermally-stable Mesoporous Aluminosilicates (MSU-S) Assembled from Zeolite Seeds, *Studies in Surface Science and Catalysis* **154**, 2853-2860 (2004).
26. Triantafyllidis\*, K. S., Nalbandian, L., Trikalitis, P. N., Ladavos, A. K., Mavromoustakos, T. & Nicolaides, C. P. Structural, compositional and acidic characteristics of nanosized amorphous or partially crystalline ZSM-5 zeolite- based materials. *Microporous and Mesoporous Materials* **75**, 89-100 (2004).
27. Katranas, T. K., Vlessidis, A. G., Tsiatouras, V. A., Triantafyllidis, K. S. & Evmiridis\*, N. P. Dehydrogenation of propane over natural clinoptilolite zeolites. *Microporous and Mesoporous Materials* **61**, 189-198 (2003).
28. Tsiatouras, V. A., Katranas, T. K., Triantafyllidis, C. S., Vlessidis, A. G., Paulidou, E. G. & Evmiridis\*, N. P. Dehydrogenation of propane over various chromium-modified MFI-type zeolite catalysts, *Studies in Surface Science and Catalysis* **142**, 839-846 (2002).
29. Lappas\*, A. A., Triantafyllidis, C. S., Tsagrasouli, Z. A., Tsiatouras, V. A., Vasalos, I. A. & Evmiridis, N. P. Development of New ZSM-5 Catalyst-additives in the Fluid Catalytic Cracking Process for the Maximization of Gaseous Alkenes Yield, *Studies in Surface Science and Catalysis* **142**, 807-814 (2002).
30. Triantafyllidis, C. S., LeBaron, P. C. & Pinnavaia\*, T. J. Thermoset epoxy-clay nanocomposites: The dual role of alpha,omega-diamines as clay surface modifiers and polymer curing agents. *Journal of Solid State Chemistry* **167**, 354-362 (2002).
31. Triantafyllidis, C. S., LeBaron, P. C. & Pinnavaia\*, T. J. Homostructured mixed inorganic-organic ion clays: A new approach to epoxy polymer-exfoliated clay nanocomposites with a reduced organic modifier content. *Chemistry of Materials* **14**, 4088-4095 (2002).
32. Vlessidis, A. G., Triantafyllidis, C. S. & Evmiridis\*, N. P. Removal and recovery of p-phenylenediamines developing compounds from photofinishing lab-washwater using clinoptilolite tuffs from Greece. *Water Research* **35**, 1603-1608 (2001).
33. Triantafyllidis, C. S., Tsiatouras, V. A., Vlessidis, A. G. & Evmiridis\*, N. P. Acidity characterization of dealuminated H-ZSM-5 zeolites by isopropanol dehydration. *Studies in Surface Science and Catalysis* **135**, 4655-4662 (2001).
34. Triantafyllidis, C. S., Vlessidis, A. G., Nalbandian, L. & Evmiridis\*, N. P. Effect of the degree and type of the dealumination method on the structural, compositional and acidic characteristics of H-ZSM-5 zeolites. *Microporous and Mesoporous Materials* **47**, 369-388 (2001).
35. Godelitsas\*, A., Charistos, D., Tshipis, A., Tshipis, C., Filippidis, A., Triantafyllidis, C., Manos, G. & Siapkias, D. Characterisation of zeolitic materials with a HEU-type structure modified by transition metal elements: Definition of acid sites in nickel-loaded crystals in the light of experimental and quantum-chemical results. *Chemistry-A European Journal* **7**, 3705-3721 (2001).
36. Triantafyllidis, C. S., Vlessidis, A. G. & Evmiridis\*, N. P. Dealuminated H-Y zeolites: Influence of the degree and the type of dealumination method on the structural and acidic characteristics of H-Y zeolites. *Industrial & Engineering Chemistry Research* **39**, 307-319 (2000).

37. Triantafyllidis, C. S. & Evmiridis\*, N. P. Dealuminated H-Y zeolites: Influence of the number and type of acid sites on the catalytic activity for isopropanol dehydration. *Industrial & Engineering Chemistry Research* **39**, 3233-3240 (2000).
38. Vlessidis, A. G., Triantafyllidis, C. S. & Evmiridis\*, N. P. Removal and recovery of harmful compounds from wastewater of photographic processes by synthetic zeolite - Y. *Studies in Surface Science and Catalysis* **125**, 785-792 (1999).
39. Triantafyllidis, C. S., Evmiridis\*, N. P., Nalbandian, L. & Vasalos, I. A. Performance of ZSM-5 as a fluid catalytic cracking catalyst additive: Effect of the total number of acid sites and particle size. *Industrial & Engineering Chemistry Research* **38**, 916-927 (1999).
40. Charistos\*, D., Godelitsas, A., Tsipis, C., Sofoniou, M., Dwyer, J., Manos, G., Filippidis, A. & Triantafyllidis, C. Interaction of natrolite and thomsonite intergrowths with aqueous solutions of different initial pH values at 25 degrees C in the presence of KCl: Reaction mechanisms. *Applied Geochemistry* **12**, 693-703 (1997).

## 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.  
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.

## Participation in International Scientific Conferences

### Oral Presentations

- 1) **1<sup>st</sup> International Workshop of the European Nanoporous Materials Institute of Excellence (ENMIX) on “Nanostructured materials for sorption, separation and catalysis”, Antwerp, Belgium, October 4-5, 2010.** Microporous (zeolitic), mesoporous and mesoporous-zeolitic catalysts for the sustainable production of petroleum-based fuels and biofuels. K.S. Triantafyllidis\*, E. Iliopoulou, A.A. Lappas, T.J. Pinnavaia.
- 2) **1<sup>st</sup> Workshop of COST Action CM0903 "Utilization of Biomass for Sustainable Fuels and Chemicals (UBIOCHEM)", Cordoba, Spain, May 13-15, 2010.** Catalytic Pyrolysis of Hydrothermally-pretreated Lignocellulosic Biomass. S. Stephanidis, C. Nitsos, K. Kalogiannis, E. Iliopoulou, A. Lappas, K. Triantafyllidis\*
- 3) **16<sup>th</sup> International Zeolite Conference joint with the 7<sup>th</sup> International Mesostructured Materials Symposium, Sorrento, Italy, July 4-9, 2010.** Improving activity and selectivity in petroleum cracking by the use of zeolite catalysts with small intracrystal mesopores. K.S. Triantafyllidis\*, A.A. Lappas, D.H. Park, S.S. Kim, H. Wang, T.J. Pinnavaia\*.
- 4) **7<sup>th</sup> International Conference on Nanosciences & Nanotechnologies (NN10), Ouranopolis Halkidiki, Greece, July 11-14, 2010.** Thermal and Mechanical Properties of Epoxy Polymers Reinforced with Carbon Nanotubes, Layered Silicates and Silica Nanostructures D.J. Giliopoulos, K.S. Triantafyllidis\*.
- 5) **6<sup>th</sup> World Congress on Oxidation Catalysis, Lille, France, July 5-10, 2009.** Oxidative dehydrogenation of propane over NiO<sub>x</sub> catalysts supported on high-surface area mesoporous silicas Karakoulia S.A. Triantafyllidis, K.S., Lemonidou, A.A.\*
- 6) **6<sup>th</sup> International Conference on Nanosciences & Nanotechnologies - NN09, Thessaloniki, Greece, July 13-15, 2009.** Nanocomposites of triblock copolymer polystyrene-*b*-polyisoprene-*b*-polystyrene (PS-*b*-PI-*b*-PS) with layered silicates and carbon nanotubes. Enotiadis, A. Litina, K., Rangou, S., Politakos, N., Misichronis, K., Xidas, P. Triantafyllidis, K., Avgeropoulos\*, A., Gournis\*, D.
- 7) **13<sup>th</sup> European Conference of Composite Materials, Stockholm, Sweden, June 2-5, 2008.** Preparation and Characterization of LDPE/Organolaponite Nanocomposites. Giannakas, A. Spanos, C.G., Xidas, P., Triantafyllidis, K.S., Ladavos\*, A.
- 8) **4<sup>th</sup> International Conference of the Federation of European Zeolite Associations (FEZA), Paris, September 2-6, 2008.** Rh-TPPTS/LDH – A New Heterogeneous Catalyst for the Synthesis of functionalized  $\gamma$ -lactone. Neatu, F., Triantafyllidis, K., Genet, J. P., Michelet, V., Parvulescu\*, V.I.
- 9) **Pre-conference of the 14<sup>th</sup> International Congress on Catalysis "Nanocatalysis: Fundamentals & Applications", Dalian, China, July 9-12, 2008.** Highly active supported Ru-nanoparticles for N<sub>2</sub>O catalytic decomposition: Comparison with conventional micro-sized metal particles. Komvokis, V.G., Delimitis, A., Vasalos, I.A., Triantafyllidis\*, K.S.
- 10) **1<sup>st</sup> International Conference: From Nanoparticles & Nanomaterials to Nanodevices & Nanosystems, Halkidiki, Greece, June 16-18, 2008.** Highly active bimetallic (iron/cobalt) supported nanocatalysts for the synthesis of CNTs. Triantafyllidis\*, K., Karakoulia, S., Delimitis, A., Tsoufis, T., Gournis, D., Bakas, T., Maccallini, E., Rudolf, P.
- 11) **DeNO<sub>x</sub>CAT2007: Past and Present in DeNO<sub>x</sub> Catalysis: From molecular modelling to chemical engineering, Uzlina, Romania, June 17-20, 2007.** Cu-ZSM-5 based catalytic additives



- for the simultaneous reduction of NO and CO emissions of the FCC regenerator. Komvokis, V.G., Vasalos, I.A., Triantafyllidis\*, K.S.
- 12) **VIII International Conference of Romanian Catalysis Society, Bucharest, Romania, June 21-23, 2007.** Catalytic pyrolysis of biomass towards the production of biofuels and chemicals Triantafyllidis\*, K.S., Iliopoulou, E.F., Lappas, A.A.
  - 13) **Europacat-VIII, Turku, Finland, August 26-31, 2007.** Oxidative dehydrogenation of propane over vanadia catalysts supported on non-porous, microporous and mesoporous silicate supports. Karakoulia, S.A., Triantafyllidis, K.S., Tsilomelekis, G., Boghosian, S., Lemonidou\*, A.A.
  - 14) **Europacat-VIII, Turku, Finland, August 26-31, 2007.** Cu-ZSM-5 based additives for the simultaneous decrease of NO and CO formed during regeneration of spent Fluid Catalytic Cracking catalysts. Komvokis, V.G., Vasalos, I.A., Triantafyllidis\*, K.S.
  - 15) **46<sup>th</sup> Microsymposium of PMM on "Nanostructured Polymers and Polymer Nanocomposites", Prague, Czech Republic, July 8-12, 2007.** Alternative synthetic routes to epoxy polymer - clay nanocomposites via minimization of the organic modifier content in organoclays. Triantafyllidis\*, K.S., Xidas, P.I., Pinnavaia, T.J.
  - 16) **Protection and Restoration of the Environment VIII, Chania, Crece, July 3-7, 2006.** Adsorption of reactive red 239 from aqueous solution onto HMS type mesoporous silica. Lazaridis\*, N.K., Asouhidou D.D., Triantafyllidis K.S., Matis K.A.
  - 17) **XVII International Conference on Chemical Reactors CHEMREACTOR-17, Post-Symposium "Catalytic Processing of Renewable Sources: Fuel, Energy, Chemicals", Athens-Crete, Greece, May 15-19, 2006.** Catalytic pyrolysis of biomass by mesoporous materials: Effect of steam stability and acidity of Al-MCM-41 catalysts. Iliopoulou, E.F., Antonakou, E.V., Karakoulia, S.A., Lappas, A.A., Vasalos, I.A., Triantafyllidis\*, K.S.
  - 18) **1st International Workshop on IN-Situ Study and DEvelopment of Processes Involving PORous Solids, La Grande Motte, France, March 19-23, 2006.** Hydrothermally-stable mesoporous alumino-silicates (MSU-S) assembled from zeolite seeds as catalysts for biomass pyrolysis. Triantafyllidis\*, K.S., Iliopoulou, E.F., Antonakou, E.V., Lappas, A.A., Pinnavaia, T.J.
  - 19) **2nd Conference of the Coordination Action CONCORDE: CO-ordination of Nanostructured Catalytic Oxides Research and Development in Europe, Thessaloniki, Greece January 26-28, 2006.** Development of optimized Cu-ZSM-5 deNO<sub>x</sub> catalytic materials both for HC-SCR applications and as FCC catalytic additives. Komvokis, V.G., Iliopoulou, E.F., Vasalos, I.A., Triantafyllidis\*, K.S., Marshall, C.L.
  - 20) **231st American Chemical Society Meeting, Atlanta, GA USA, March 26-30, 2006.** Novel metal-modified ZSM-5 formulations as catalysts for the simultaneous reduction of NO and CO emissions from the regenerator of an FCC unit. Komvokis, V.G., Iliopoulou, E.F., Vasalos, I.A., Triantafyllidis\*, K.S., Marshall, C.L.
  - 21) **231st American Chemical Society Meeting, Atlanta, GA USA, March 26-30, 2006.** Microporous (zeolitic) and mesoporous (MCM-41) silicate supports of Fe/Co oxides as catalysts for carbon nanotube formation. Triantafyllidis\*, K., Karakoulia, S., Tsoufis, T., Gournis, D., Delimitis, A., Nalbandian, L.
  - 22) **2<sup>nd</sup> International Conference on Green and Sustainable Chemistry and 9<sup>th</sup> Annual Green Chemistry and Engineering Conference, Washington, USA, June 20-25, 2005.** Green chemistry approaches to polymer - clay nanocomposites. Pinnavaia\*, T.J., Xue, S., Reinholdt, M., Triantafyllidis, K.

- 23) **Europacat-VII, Bulgaria, Sofia, August 28 - September 1, 2005.** Ethylene Epoxidation on Ag-based catalysts: Effect of porous structure and surface acidity of the support. Fotopoulos, A.P., Matis, K.A., Triantafyllidis\*, K.S.
- 24) **14<sup>th</sup> Int. Zeolite Conference, Cape Town, South Africa, April 25-30, 2004.** Gas-oil cracking activity and product selectivity of the hydrothermally-stable mesoporous aluminosilicates (MSU-S) assembled from zeolites seeds. Triantafyllidis\*, K.S., Lappas, A.A., Vasalos, I.A., Liu, Y. & Pinnavaia, T.J.
- 25) **2002 MRS Spring Meeting (Materials Research Society), San Francisco, California, 1-5 April 2002.** Minimizing the Organic Modifier in the Preparation of Polymer Clay Nanocomposites. Pinnavaia\*, T. J., LeBaron, P. C., Triantafyllidis C. S.
- 26) **Automotive Composites Conference, Society of Plastic Engineers, Troy, Michigan, 19-20 September 2001.** Approaches to Clay Nanolayer Reinforced Thermoset Epoxy Polymer Nanocomposites. Triantafyllidis C. S., LeBaron, P. C., Pinnavaia\*, T. J.
- 27) **222<sup>nd</sup> ACS National Meeting (American Chemical Society), Chicago, Illinois, 26-30 August 2001.** Homoionic and Mixed Ion Inorganic/Organic Montmorillonite and Fluorohectorite Clays as Fillers in Glassy Epoxy Nanocomposites. Triantafyllidis\* C. S., Sislo, M., LeBaron, P. C., Pinnavaia, T. J.
- 28) **38<sup>th</sup> Annual Meeting of the Clay Minerals Society, Monona Terrace Community and Convention Center, Madison, Wisconsin, 16-20 June 2001.** Clay Nanolayer Reinforcement of Thermoset Polymers. Pinnavaia\*, T. J., LeBaron, P. C., Triantafyllidis C. S.
- 29) **Nanocomposite 2001. The Path to Commercialization (Principia Partners), Baltimore, 4-5 June 2001.** Organic Modifiers for the Formation of Polymer – Clay Nanocomposites: Are They Really Necessary?. Pinnavaia\*, T. J., LeBaron, P., Triantafyllidis C., Sislo, M. Wang, Z.

### **Poster presentation**

- 30) **16<sup>th</sup> International Zeolite Conference joint with the 7<sup>th</sup> International Mesostructured Materials Symposium, Sorrento, Italy, July 4-9, 2010.** Supported-metal mesoporous catalysts in selective oxidation reactions: The effect of mesopore structure and size on activity and selectivity. S. A. Karakoulia, A. P. Fotopoulos, K. S. Triantafyllidis, A. A. Lemonidou\*
- 31) **7<sup>th</sup> International Conference on Nanosciences & Nanotechnologies (NN10), Ouranopolis Halkidiki, Greece, July 11-14, 2010.** Studies of molecular dynamics of poly(propylene oxide) amines intercalated in clay. A. Panagopoulou, K. Vartzelis-Nikakis, S. Kriptou, A. Kyritsis, P.I. Xidas, K.S. Triantafyllidis.
- 32) **Europacat-IX, Salamanca, Spain, August 30 - September 4, 2009.** Catalytic *in situ* upgrading of lignocellulosic biomass pyrolysis products by zeolite catalysts with different porosity and acidic characteristics. Iliopoulou, E.F. Lappas, A.A., Triantafyllidis\*, K.S.
- 33) **Europacat-IX, Salamanca, Spain, August 30 - September 4, 2009.** Highly active and selective NiO-Al<sub>2</sub>O<sub>3</sub> catalysts for oxidative dehydrogenation of propane derived from different synthetic pathways. Karakoulia, S.A., Triantafyllidis, K.S., Lemonidou\*, A.A.
- 34) **Europacat-IX, Salamanca, Spain, August 30 - September 4, 2009.** Highly active supported Ru-nanoparticles (< 3nm) for N<sub>2</sub>O catalytic decomposition prepared by chemical reduction with ethylene glycol. Komvokis, V.G., Delimitis, A., Vasalos, I.A., Triantafyllidis\*, K.S.

- 35) **Europacat-IX, Salamanca, Spain, August 30 - September 4, 2009.** Metal-modified zeolitic additives for the *in situ* reduction of NO<sub>x</sub> formed in the Fluid Catalytic Cracking (FCC) regenerator. Komvokis, V.G., Lappas, A.A., Vasalos, I.A., Triantafyllidis\*, K.S.
- 36) **5th International Conference on Environmental Catalysis, Belfast, August 31-September 3, 2008.** Catalytic pyrolysis of biomass for the production of alternative fuels and chemicals: Effects of catalyst's acidity. Iliopoulou\*, E.F., Papazisi, K., Lappas, A.A., Triantafyllidis, K.S.
- 37) **6th International Mesostructured Materials Symposium (IMMS), Namur, Belgium, October 8-11, 2008.** Gasoil Cracking Over a ZSM-5 Zeolite Catalyst with Uniform Intracrystal Mesopores. Park, D.H., Triantafyllidis, K.S., Papapetrou, M.C., Lappas, A.A., Kim, S.-S., Pinnavaia, \* T.J.
- 38) **6th International Mesostructured Materials Symposium (IMMS), Namur, Belgium, October 8-11, 2008.** The Benefit of Using High-Surface Area Mesoporous Silicas as Metal Catalyst Supports in Selective Oxidation Reactions. Triantafyllidis\*, K.S., Fotopoulos, A.P., Matis, K.A., Karakoulia, S.A., Lemonidou, A.A.
- 39) **6th International Mesostructured Materials Symposium (IMMS), Namur, Belgium, October 8-11, 2008.** Adsorption of Organic Dyes from Aqueous Solutions by Functionalized HMS-type Mesoporous Silica. Asouhidou, D.D., Lazaridis, N.K., Triantafyllidis\*, K.S., Matis, K.A.
- 40) **1st International Workshop on "Nanoporous Materials in Energy and Environment" - NAPEN 2008, Chania-Krete, October 12-15, 2008.** Nanostructured micro- and mesoporous materials for the catalytic pyrolysis of biomass towards the production of fuels & chemicals. E.F. Iliopoulou, A.A. Lappas, K.S. Triantafyllidis.
- 41) **14th International Congress on Catalysis, Seoul, Korea, July 13-28, 2008.** Oxidative dehydrogenation of propane over vanadia catalysts supported on high-surface area mesoporous silicas: Effect of silicas' framework pore structure. Karakoulia, S.A., Triantafyllidis, K.S., Lemonidou\* A.A.
- 42) **Pre-conference of the 14th International Congress on Catalysis "Nanocatalysis: Fundamentals & Applications", Dalian, China, July 9-12, 2008.** Study of reaction parameters in the ODH of propane on VO<sub>x</sub>/HMS silica nanostructured catalysts. Karakoulia, S.A. Triantafyllidis\*, K.S., Lemonidou, A.A.
- 43) **1st International Conference: From Nanoparticles & Nanomaterials to Nanodevices & Nanosystems, Halkidiki, Greece, June 16-18, 2008.** Effect of alkylammonium ion clay modifier on the structure and thermomechanical properties of glassy epoxy – clay nanocomposites. Xidas\*, P., Triantafyllidis, K.
- 44) **15th International Zeolite Conference (15th IZC): From Zeolites to Porous MOF Materials, Beijing, China, August 12-17, 2007.** Adsorption of remazol red 3BS from aqueous solutions onto mesostructured carbon molecular sieves. Asouhidou, D.D., Triantafyllidis\*, K.S., Lazaridis, N.K., Matis, K.A., Kim, S.S., Pinnavaia, T.J.
- 45) **15th International Zeolite Conference (15th IZC): From Zeolites to Porous MOF Materials, Beijing, China, August 12-17, 2007.** Oxidative dehydrogenation of propane over vanadia supported on MCM-41 and HMS mesoporous silicates. Karakoulia, S., Triantafyllidis\*, K.S., Nalbandian, L., Lemonidou, A.A.
- 46) **15th International Zeolite Conference (15th IZC): From Zeolites to Porous MOF Materials, Beijing, China, August 12-17, 2007.** Microporous and mesoporous aluminosilicates as catalysts

- for the cracking of Fischer-Tropsch waxes towards the production of "clean" bio-fuels. Triantafyllidis\*, K.S., Komvokis, V.G., Papapetrou, M.C., Vasalos, I.A., Lappas, A.A.
- 47) **Europacat-VIII, Turku, Finland, August 26-31, 2007.** Catalytic Pyrolysis of Biomass towards the Production of Biofuels and Fine Chemicals. Iliopoulou\*, E.F., Triantafyllidis, K.S., Lappas, A.A.
- 48) **4<sup>th</sup> International Workshop on Nanosciences & Nanotechnologies, Thessaloniki, Greece, July 16-18, 2007.** Polymer - clay nanocomposites for Aerospace Applications. Xidas, P.I., Triantafyllidis\*, K.S., Pinnavaia, T.J.
- 49) **2<sup>nd</sup> International School & Workshop on "IN-Situ Study and DEvelopment of Processes Involving PORous Solids (InsidePores)", Thessaloniki, Greece, February 24-28, 2007.** Formation of carbon nanotubes on iron/cobalt-modified zeolite-Y: Effect of zeolite porosity and particle morphology. K.S. Triantafyllidis\*, S.A. Karakoulia, D. Gournis, L. Nalbandian, A. Delimitis, E. Maccalini, P. Rudolf
- 50) **2<sup>nd</sup> International School & Workshop on "IN-Situ Study and DEvelopment of Processes Involving PORous Solids (InsidePores)", Thessaloniki, Greece, February 24-28, 2007.** Oxidative dehydrogenation of propane over vanadia catalysts: From non-porous to ultra-mesoporous silicates supports. S.A. Karakoulia, K.S. Triantafyllidis\*, A. A. Lemonidou
- 51) **Protection and Restoration of the Environment VIII, Chania, Greece, July 3-7, 2006.** Catalytic Pyrolysis of Biomass towards the Production of Biofuels and Fine Chemicals. Iliopoulou, E.F., Antonakou, E.V., Komvokis, V.G., Lappas, A.A., Triantafyllidis\*, K.S.
- 52) **4<sup>th</sup> International EFCATs School on Catalysis, St. Petersburg, Russia, September 20-24, 2006.** Oxidative dehydrogenation of propane and ethane over vanadium catalysts supported on mesoporous materials. Karakoulia, S., Triantafyllidis, K.S., Lemonidou\*, A.A.
- 53) **4<sup>th</sup> Workshop of the European Union Coordination Action CONCORDE, Kraków, Poland, February 24-25, 2006.** Study of the deactivation of Ag-catalysts supported on high surface area mesoporous materials in the reaction of ethylene epoxidation. Fotopoulos, A.P., Orfanou, O., Triantafyllidis\*, K.S.
- 54) **Europacat-VII, Bulgaria, Sofia, August 28 - September 1, 2005.** Effect of pretreatment and regeneration conditions of Ru/Al<sub>2</sub>O<sub>3</sub> catalysts for the N<sub>2</sub>O decomposition in O<sub>2</sub> rich atmospheres in the presence of SO<sub>2</sub> and H<sub>2</sub>O. Komvokis, V.G., Marnellos, G.E., Triantafyllidis\*, K.S., Vasalos, I.A.
- 55) **Europacat-VII, Bulgaria, Sofia, August 28 - September 1, 2005.** Zn-based catalytic additives for the in-situ reduction of sulphur in FCC gasoline: Effect of additive support. Kanaki, A.X., Valla, J.A., Triantafyllidis, K.S., Lappas\*, A.A., Vasalos, I.A.
- 56) **1st Conference of the Coordination Action CONCORDE: CO-ordination of Nanostructured Catalytic Oxides Research and Development in Europe, Louvain-la-Neuve (Belgium), January 26-28, 2005.** Gas-oil cracking activity of hydrothermally-stable aluminosilicate mesostructures (MSU-S) assembled from zeolite seeds: Effect of the type of framework structure and porosity. Triantafyllidis\*, K.S., Lappas, A.A., Vasalos, I.A., Liu, Y., Wang, H., Pinnavaia, T.J.
- 57) **3<sup>rd</sup> Conference of the European Zeolite Association (3<sup>rd</sup> FEZA), Prague, Czech Republic, August 23-36, 2005.** Formation of carbon nanotubes on iron/cobalt-modified zeolites: Effect of

- zeolite framework/pore structure and method of modification. Karakoulia, S., Jankovic, L., Dimos, K., Gournis, D., Triantafyllidis\*, K.
- 58) **3<sup>rd</sup> International. Workshop on “Oxide Based Materials” New Sources, novel phases, new applications, Como, Societa del Casino, September 13-16, 2004.** Dehydrogenation of propane over Ga and Cr modified, “fresh” and steamed, MFI-type zeolites. Katranas, T.K., Triantafyllidis, K.S., Vlessidis, A.G., Evmiridis\*, N.P.
- 59) **2<sup>nd</sup> Conference of the European Zeolite Association (2<sup>nd</sup> FEZA), Taormina, Giardini Naxos, Italy, September 1-4, 2002.** Development of new ZSM-5 catalyst-additives in the Fluid Catalytic Cracking process for the maximization of gaseous alkenes yield. Lappas, A. A., Triantafyllidis\*, C. S., Tsagrasouli, Z. A., Tsiatouras, V. A., Vasalos, I. A., Evmiridis, N. P.
- 60) **2<sup>nd</sup> Conference of the European Zeolite Association (2<sup>nd</sup> FEZA), Taormina, Giardini Naxos, Italy, September 1-4, 2002.** Dehydrogenation of propane over various chromium-modified MFI-type zeolite catalysts. Tsiatouras, V. A., Katranas, T. K., Triantafyllidis, C. S., Vlessidis, A. G., Evmiridis\*, N. P.
- 61) **Zeolite’02 Conference (International Committee of Natural Zeolites), Thessaloniki, Greece, June 3-7, 2002.** Dehydrogenation of propane over natural clinoptilolite zeolites. Katranas, T. K., Vlessidis, A. G. Tsiatouras, V. A., Triantafyllidis, K. S., Evmiridis\*, N. P.
- 62) **IMA 2001 (Instrumental Methods of Analysis), University of Ioannina, Greece, September 5-8, 2001.** Flame Atomic Absorption Spectrophotometric Determination of Multi-element Zeolitic Structure Catalysts: Effect of Dissolution Method. Tsiatouras V. A., Vlessidis, A. G., Triantafyllidis C. S., Katranas, T. K., Evmiridis\*, N. P.
- 63) **15<sup>th</sup> Annual CFMR Symposium (Center for Fundamental Materials Research, Michigan State University), E. Lansing, Michigan, March 25-26, 2001.** Clay Nanoparticle Reinforcement of Glassy Epoxy Polymers. Triantafyllidis C. S., LeBaron, P. C., Sislo, M., Pinnavaia\*, T. J.
- 64) **4<sup>th</sup> International Symposium on Supported Reagents and Catalysts in Chemistry, University of St. Andrews, Scotland, July 2-6, 2000.** Influence of the Degree and Type of Dealumination Method on the Structural and Acidic Characteristics of H-ZSM-5 Zeolites. Triantafyllidis, C. S., Evmiridis\*, N. P.
- 65) **2<sup>nd</sup> International Conference of the Chemical Societies of the South-Eastern Countries on Chemical Sciences for Sustainable Development, Halkidiki, Greece, 6-9 June 2000.** Transition Metal Elements and Vanadium in Zeolitic Catalysts: Effects and Interactions on Structure Breakdown and Acidity. Tsiatouras, V. A., Triantafyllidis, C. S., Evmiridis\*, N. P.
- 66) **1<sup>st</sup> Conference of the European Zeolite Association, Eger, Hungary, September 1-4, 1999.** Removal and recovery of harmful compounds from waste water of photographic processes by using synthetic zeolite – Y. Vlessidis, A. G., Triantafyllidis, C. S., Evmiridis\*, N. P.
- 67) **NATO-ARW on Natural Microporous Materials in Environmental Technology, Smolenike, Slovakia, 26 – 30 October 1998.** Characterization of Natural Microporous Manganese Oxides: The case of Todorokite. Godelitsas\*, A., Misaelides, P., Katranas, T., Triantafyllidis, C., Klewe-Nebenius, H., Pavlidou, E., Anousis, I.
- 68) **Europacat - II Congress, Maastricht Exhibition and Congress Centre, Maastricht, The Netherlands, September 3-8, 1995.** Effects of the Si/Al ratio and Pretreatment of ZSM-5 on it’s Performance as FCC Catalyst-Additive during Gas-oil Cracking, studied by Microactivity Test (MAT). Triantafyllidis, C. S., Evmiridis\*, N. P., Nalbandian, L., Vasalos, I. A.