

CURRICULUM VITAE



Last name : **Dimos**
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EDUCATION - RESEARCH EXPERIENCE

2010-today Visiting Lecturer (fixed term contract) at the Department of Materials Science, University of Patras, Greece.
2010-today Freelancer, Chemistry Research and Experimental Development Services.
2009-today Postdoctoral research associate at the Department of Materials Science and Engineering, University of Ioannina, Greece.
2009-today Undergraduate student at the Department of Mechanical Engineering, University of Western Macedonia, Kozani, Greece.
2003-2009 Ph.D. Thesis on: «**Nanocomposite materials based on natural phylломorphous or/and synthetic mesostructured porous solids**», Department of Materials Science and Engineering, University of Ioannina. Grade: Excellent.
2005-2008 M.Sc. Diploma on: «**Synthesis and characterization of bioactive glasses and glass-ceramics of the MgO-CaO-P₂O₅-B₂O₃ system**», Cross-Departmental Master Course Program: «Materials Chemistry and Technology», Departments of Chemistry and Materials Science and Engineering, University of Ioannina. Grade: 9.00.
1998-2002 First Degree (B.Sc.) in Chemistry, University of Ioannina, Greece. Grade: 7.50.

RESEARCH INTERESTS

- Hybrid mesoporous materials of the MCM-41 type, modified with organic molecules. The ability of the hybrid materials to bind heavy metals like Hg, Pb, Cd, Zn and Cu is studied.
- Mesostructured synthetic porous materials of types MCM-41, SBA-15 and HMS based on SiO₂ modified with semiconducting particles or catalytic metal centers aiming the production of novel materials with enhanced properties.
- Periodic Mesoporous Organosilicates (PMO's) for hydrogen storage.

- Bioactive boron-phosphate glasses and glass-ceramics for medical applications as implants.
- Materials from naturally occurred phyllosilicate clay minerals or zeolites and organic molecules, semiconducting particles or catalytic metal centers aiming the production of hybrids with enhanced sorption, optic or catalytic properties.
- Hybrid materials based on mesoporous carbon structures as CMK-3 and CMK-5 or carbon nanotubes CNT's with novel properties for various technological applications.
- Novel biomaterials based on PEG or Alginate hydrogels to be used as Drug Delivery Systems (DDS).

Synthetic procedures: sol-gel synthesis, hydrothermal synthesis, solid state reactions, intercalation reactions, dip-coating and spin-coating techniques, molten quenching techniques (water quenching, splat quenching, roller quenching), controlled glass crystallization, Chemical Vapor Deposition (CVD).

Characterization techniques: μ -Raman, Mid-FTIR, UV-Vis, PL/PLE spectroscopies, DTA/DSC/DTG, specific surface area and porosity analysis, mercury porosimetry, powder XRD, AFM, ASV, elemental analysis, NMR, EPR, SEM/EDS, mechanical testings.

HONORS - SCHOLARSHIPS

- 2 scholarships from the Greek State Scholarships Foundation and a four-year duration scholarship from George Stavros Public Benefit Foundation during under-graduation studies at the Department of Chemistry at University of Ioannina.
- Four-year duration scholarship from George Stavros Public Benefit Foundation during post-graduation studies at the Department of Materials Science and Engineering at University of Ioannina.
- Member of the Editorial Board of the international scientific journal: Global Journal of Physical Chemistry.
- Reviewer for the international journals: Microporous and Mesoporous Materials, Global Journal of Physical Chemistry and Chemical Engineering Journal.
- Biography selected for inclusion in the Marquis Who's Who in the World for 2011.

PARTICIPATION IN FUNDED RESEARCH PROGRAMS

1. «Development of new hybrid materials for catalytic and environmental applications», Pithagoras-I (HMNE-Greece).
2. «Development of bioactive and biomimetic inorganic materials using sol-gel method and the surface activation of inert glasses and glass-ceramics», Pithagoras-II (HMNE-Greece).
3. «Novel clay/low-dimensional nanosemiconductor hybrids», JRTP (GSRT-Greece).
4. «Synthesis, characterization and evaluation of novel hybrid biomaterials for interventions in sports injuries», Smith & Nephew Inc.
5. «Hydrogen storage materials for solar energy applications», Innova-Technology Solutions S.R.L.
6. «Biological material production and participation in experimental level animal research programs on cardiovascular diseases», Cardiovascular Research Institute.
7. «Large area molecularly assembled nanopatterns for devices», FP7-NMP-2009-SMALL-3, European Union.
8. «Application of novel inorganic nanostructures for the development of polymer nanocomposites with improved properties», Cooperation (GSRT-Greece).

Shortcut explanations:

HMNE: Hellenic Ministry of National Education & Religious Affairs, Managing Authority of Operational Program “Education and Initial Vocational Training” Pithagoras.

JRTP: Joint Research and Technology Programs.

GSRT: General Secretariat for Research & Technology. Ministry of Development of Greece.

PUBLICATIONS (in refereed journals)

1. Catalytic production of carbon nanotubes over first row transition metal oxides supported on montmorillonite, L. Jankovic, D. Gournis, **K. Dimos**, M.A. Karakassides and T. Bakas, *Journal of Physics: Conference Series* 10 (1) (2005) 178-181.
2. Formation of carbon nanotubes on iron/cobalt-modified zeolites: Effect of zeolite framework/pore structure and method of modification, S. Karakoulia, L. Jankovic, **K. Dimos**, D. Gournis and K.S. Triantafyllidis, *Studies in Surface Science and Catalysis* 158 (A-B) (2005) 391-398.
3. Carbon nanotubes encapsulating superconducting single-crystalline tin nanowires, L. Jankovic, D. Gournis, P.N. Trikalitis, I. Arfaoui, T. Cren, P. Rudolf, M.H. Sage, T.T.M. Palstra, B. Kooi, J. De Hosson, M.A. Karakassides, **K. Dimos**, A. Moukarika and T. Bakas, *Nano Letters* 6 (6) (2006) 1131-1135.
4. Adsorption and radical stabilization of humic-acid analogues and Pb²⁺ on restricted phyllosilicate clay, E. Giannakopoulos, **K. Dimos**, D. Gournis, Y. Deligiannakis, P. Stathi and Y. Sanakis, *Langmuir* 22 (16) (2006) 6863-6873.
5. Synthesis and characterization of ZnS nanosized semiconductor particles within mesoporous solids, **K. Dimos**, I.B. Koutselas and M.A. Karakassides, *Journal of Physical Chemistry B* 110 (45) (2006) 22339-22345.
6. Synthesis and characterization of PbI₂ semiconductor quantum wires within layered solids, I.B. Koutselas, **K. Dimos**, A. Bourlinos, D. Gournis, A. Avgeropoulos, A. Agathopoulos and M.A. Karakassides, *Journal of Optoelectronics and Advanced Materials* 10 (1) (2008) 58-65.
7. Synthesis and characterization of hybrid MCM-41 solids for heavy metal adsorption, **K. Dimos***, P. Stathi, M.A. Karakassides and Y. Deligiannakis, *Microporous and Mesoporous Materials* 126 (1-2) (2009) 65-71.
8. Mechanism of heavy metal uptake by a hybrid MCM-41 material: Surface complexation and EPR spectroscopic study, P. Stathi, **K. Dimos**, M.A. Karakassides and Y. Deligiannakis, *Journal of Colloid and Interface Science* 343 (1) (2010) 374-380.
9. Synthesis and characterization of low dimensional ZnS- and PbS- semiconductor particles on a montmorillonite template, L. Jankovic, **K. Dimos**, J. Bujdak, I.B. Koutselas, J. Madejova, D. Gournis, M.A. Karakassides and P. Komadel, *Physical Chemistry Chemical Physics* 12 (42) (2010) 14236-14244.
10. Tissue engineering for post-myocardial infarction ventricular remodeling, T.M. Kolettis, A. Vilaeti, **K. Dimos**, N. Tsitou and S. Agathopoulos, *Mini-Reviews in Medicinal Chemistry* 11 (3) (2011) 263-270.

Summary:

10 publications.

h-index = 5.

88 citations / 65 without self-citations (ISI WOS & Scopus, 20/04/11).

Average citations per publication, Citations/paper = 8.8.

Total number of Impact Factors, TIF = 32.079.

Average Impact Factor, IF/paper = 3.208.

Corresponding author in 1 paper.

1st or 2nd author in 6 out of 10 publications.

PRESENTATIONS/PUBLICATIONS IN CONFERENCES

1. Synthesis and characterization of hybrid low-dimensional PbI₂ semiconducting particles in phyllosilicates, **K. Dimos**, I. Koutselas, K. Beltsios, D. Gournis and M.A. Karakassides, 19th PanHellenic Conference on Solid State Physics and Materials Science, 21-24 September 2003, Thessaloniki.

2. Organic modification of single-walled carbon nanotubes by clays as acidic catalysts, **K. Dimos**, V. Georgakilas, D. Gournis, A. Bakandritsos, M.A. Karakassides and D. Petridis, 20th PanHellenic Conference on Solid State Physics and Materials Science, 26-29 September 2004, Ioannina.

3. Synthesis and characterization on novel hybrid biomaterials from PLLA and hydroxy-apatite fibrils, **A. Kordista**, **K. Dimos**, A. Saranti, K. Beltsios, D. Gournis and M.A. Karakassides, 20th PanHellenic Conference on Solid State Physics and Materials Science, 26-29 September 2004, Ioannina.

4. Nanocomposite materials from organic polymers, phyllosilicate minerals and carbon nanotubes, **K. Litina**, **K. Dimos**, L. Jankovic, M.A. Karakassides, A. Avgeropoulos and D. Gournis, 20th PanHellenic Conference on Solid State Physics and Materials Science, 26-29 September 2004, Ioannina.

5. Synthesis of carbon nanotubes containing Sn nanorods, **L. Jankovic**, D. Gournis, P.N. Trikalitis, **K. Dimos**, M.A. Karakassides, A. Moukarika and T. Bakas, 20th PanHellenic Conference on Solid State Physics and Materials Science, 26-29 September 2004, Ioannina.

6. Synthesis and characterization of ZnS nanosized semiconductor particles within mesoporous solids, **K. Dimos**, I. Koutselas and M.A. Karakassides, 22nd PanHellenic Conference on Solid State Physics and Materials Science, 24-27 September 2006, Patras.

7. Synthesis, characterization and valuation of hybrid mesoporous solids for heavy metal adsorption, **K. Dimos**, M.A. Karakassides, P. Stathi, G. Grigoropoulou, Y. Deligiannakis and M. Louloudi, 22nd PanHellenic Conference on Solid State Physics and Materials Science, 24-27 September 2006, Patras.

8. Surface bioactivity study of glasses and glass-ceramics produced by modified sol-gel method, **A. Saranti**, **K. Dimos**, I. Tsavdaridis, T.A. Ioannidis, S. Agathopoulos and M.A. Karakassides, 22nd PanHellenic Conference on Solid State Physics and Materials Science, 24-27 September 2006, Patras.

9. Nanoporous hybrid materials as heavy metal ion adsorbents for environmental remediation, **M.A. Karakassides**, D. Gournis, **K. Dimos** and B. Symeopoulos, The 5th international conference on materials processing for properties and performance 2006 (MP³ 2006) - Symposium on advanced moulding and forming technologies (AMFT), 11-15 December 2006, Singapore.

10. Direct synthesis of carbon nanotubes encapsulating superconducting tin nanowires, T. Tsoufis, **D. Gournis**, **K. Dimos**, M.A. Karakassides, L. Jankovic, A. Moukarika, T. Bakas, P.N. Trikalitis, T. Cren, I. Arfaoui, P. Rudolf, M-H. Sage, T.T.M. Palstra, B. Kooi and J. De Hosson, The 5th international conference on materials processing for properties and performance 2006 (MP³ 2006) - Symposium

on advanced moulding and forming technologies (AMFT), 11-15 December 2006, Singapore.

11. Synthesis and characterization of GaN semiconducting nanoparticles in MCM-41 type mesoporous materials, **K. Dimos**, I. Koutselas and M.A. Karakassides, 4th PanHellenic Symposium on Porous Materials, 22-23 October 2009, Patras.

12. Synthesis and evaluation of biodegradable biomaterials from oxidized cellulose and PEG after adhesion on rats' myocardium, **K. Dimos**, A. Vilaeti, **N. Tsitou**, E. Lampri, I. Mourouzis, A. Papalois, C. Pantos, V. Malamou-Mitsi, T.M. Kolettis and S. Agathopoulos, 4th National Conference of the Hellenic Society of Biomechanics, 4-6 June 2010, Ioannina.

13. Effect of $[\text{Fe}(\text{CN})_6]^{4-}$ substitutions on the spin flop transition of layered nickel phyllosilicate, **Dimos K.**, Panagiotopoulos I., Gournis D., Moukarika A., Karakassides M.A. and Bakas T., 26th PanHellenic Conference on Solid State Physics and Materials Science, 26-29 September 2010, Ioannina.

14. Synthesis and characterization of MCM-41 supported zero valent iron nanoparticles and their application for the removal of aqueous Cr^{6+} ions, **Petala E.**, **Dimos K.**, Karakassides M.A., Zboril R., Douvalis A. and Bakas T., 26th PanHellenic Conference on Solid State Physics and Materials Science, 26-29 September 2010, Ioannina (Best poster presentation award).

PARTICIPATIONS IN CONFERENCES

1. 4th Chemistry Conference, Department of Chemistry, University of Ioannina, 16-18 May 2001, Ioannina.

2. 5th Chemistry Conference, Department of Chemistry, University of Ioannina, 22-24 October 2002, Ioannina.

3. 1st PanHellenic Symposium on Porous Materials: Synthesis – Characterization Processes, 21-22 March 2003, Ioannina.

4. 19th PanHellenic Conference on Solid State Physics and Materials Science, 21-24 September 2003, Thessaloniki.

5. 2nd PanHellenic Conference on Thermal Analysis «THERMA2004», 25-26 June 2004, Ioannina.

6. 20th PanHellenic Conference on Solid State Physics and Materials Science, 26-29 September 2004, Ioannina.

7. 22nd PanHellenic Conference on Solid State Physics and Materials Science, 24-27 September 2006, Patras.

8. 1st Initiation Meeting in Academic and Industrial Research, 27 March 2008, Ioannina.

9. Meeting of Hellenic Metallurgical Society and Hellenic Ceramic Society: «Combination of Metallic-Ceramic materials in technological applications», 3 April 2009, Ioannina.

10. 4th PanHellenic Symposium on Porous Materials, 22-23 October 2009, Patras.

11. 4th National Conference of the Hellenic Society of Biomechanics, 4-6 June 2010, Ioannina.

12. 26th PanHellenic Conference on Solid State Physics and Materials Science, 26-29 September 2010, Ioannina.

13. Meeting of the Hellenic Ceramic Society: «Electroceramics and their applications», 29 September 2010, Ioannina.

OTHER ACTIVITIES / SKILLS

- Participation in funded educational/training program: «Reform of undergraduate curriculum of the University of Ioannina, subproject Department of Materials Science and Engineering», Operational Program "Education and Initial Vocational Training"-II (HMNE-Greece).
- Assistant teaching at Materials Lab I, II, IV and Physical Chemistry Lab at the Department of Materials Science and Engineering, University of Ioannina during academic years: 2002-2003, 2003-2004, 2004-2005, 2005-2006 and 2008-2009.
- Teaching service at Post-secondary education, Course: «Chemistry Special Topics» at the Department «Art Work Maintenance Technician», 1st Professional Training Institute of Ioannina, spring semester, academic year: 2009-2010.
- Teaching service at Middle and High School education, academic years: 2005-2006, 2006-2007, 2007-2008 and 2008-2009.
- Member of the Association of Greek Chemists from 2002, of the Hellenic Ceramic Society from 2007 and of the Cardiovascular Research Institute from 2010.
- Author's work: Course Notes: «Chemistry Special Topics», of the Department «Art Work Maintenance Technician» of the 1st Professional Training Institute of Ioannina, 2010.
- Languages: English (First Certificate in English, University of Cambridge).
- P/C: ECDL Certification.
- Military Service: Fulfilled.

ORGANIZATION IN CONFERENCES / ADVANCE COURSES

- Member of the organizing committee in 3 conferences.
- Participation in Summer School for Advanced Materials in the Materials Science Institute of NSRF "Demokritos", Athens.
- Participation in Educational Program "Computer Science III: Introduction to MS Excel, MS PowerPoint and MS Access" of the Adult Continuing Education Institute of the General Secretariat of Lifelong Learning (Ministry of Education, Lifelong Learning & Religious Affairs) at the Ioannina Adult Education Center.