

KONSTANTINIA D. PAPADIMITRIOY

PERSONAL DETAILS

Nationality: Hellenic

Date of birth: 28.02.1982

Place of birth: Katerini, Greece

Gender: Female

Marital Status: unmarried

Home address: Korinthou 205-211, GR-26221, Patras-Greece

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EDUCATION

- 2001 – 2005: **Bachelor of Chemistry** (BSc) *Grade:* 6.78/10.00

Institution: Department of Chemistry, University of Patras, Patras, Greece.

Senior thesis: “Synthesis and characterization of blends of sulfonated polysulfone with copolymers of polyethylenoxide for use as polymer electrolytes”

Supervisor: Prof. J. K. Kallitsis

- 2005 – 2007: **Master in Chemistry** (M.Sc.) *Grade:* 8.50/10.00

Institution: Department of Chemistry, University of Patras, Patras, Greece.

Master thesis: “Synthesis and characterization of proton conductive copolymers and blends”.

Supervisor: Prof. J. K. Kallitsis

- 2008 – 2011 : **Ph.D in Chemistry**

Institution: Department of Chemistry, University of Patras, Greece & Foundation for Research and Technology-Hellas (FORTH), Institute of Chemical Engineering Sciences (ICE-HT)

Ph.D thesis: “Development of Linear and Cross-Linked Polymer Electrolytes Bearing Functional Groups and their Application in a High Temperature Polymer Electrolyte Membrane Fuel Cell”

Supervisor: Prof. J. K. Kallitsis in collaboration with director researcher Stylianos.G. Neophitides of FORTH/ICE-HT.

PRESENT EMPLOYMENT/OCCUPATION

- 2011-Today: **Postdoctoral Researcher** of Foundation for Research and Technology-Hellas (FORTH), Institute of Chemical Engineering Sciences (ICE-HT).

RESEARCH ACTIVITY

A) Synthesis of aromatic monomers

B) Synthesis of polymer electrolyte membranes based on aromatic polyethers and their covalent cross-linking using different techniques for use in high temperature polymer electrolyte membrane fuel cells (HT-PEMFCs)

- Synthesis of aromatic polyethers bearing polar pyridine groups in the main polymeric backbone and immobilized side chain phosphoric acid units.
- Synthesis and characterization of aromatic polyethers bearing main or side chain polar pyridine groups and unsaturated side double bonds.
- Covalent cross-linking of unsaturated aromatic polyethers using thermal cross-linking, different cross-linking agents or cross-linking in phosphoric acid.

C) Characterization of the properties of the polymeric materials

- Size Exclusion Chromatography (**SEC**)
- Proton and phosphorus Nuclear Magnetic Resonance Spectroscopy (**^1H , ^{31}P NMR**)
- Dynamic Mechanical Analysis (**DMA**)

- Thermogravimetric Analysis (TGA)
- Viscometry
- FT-IR spectroscopy
- Conductivity measurements using the **Four Probe Current Interruption Method**

PARTICIPATION IN RESEARCH PROJECTS (2006-today)

- Apollon B- “**Polymer electrolytes and non noble metal electrocatalysts for high temperature PEM fuel cells**” FP6-2004-NMP-TI-4, (1/10/2006- 30/9/2009)
- “**Synthesis and characterization of polymer electrolyte membranes**” funded by the company ADVEN TECHNOLOGIES, (1/10/2009-30/12/2009)
- DEMMEA – “**Understanding the Degradation Mechanisms of Membrane-Electrode-Assembly for High Temperature PEMFCs and Optimization of the Individual Components**” GA: 245156, (1/1/2011-31/1/2011)
- “Expansion of the Research Potential FORTH/ICE-HT” (8/2/2011-31/1/2012)
- BIONEXGEN- “ **Development of the next generation bioreactor system** ” GA: 246039, (1/3/2012-31/5/2012)
- NANOBARRIER- “ **NanoBarrier-Extended shelf-life biopolymers for sustainable and multifunctional food packaging solutions** ” GA: 280759, (1/10/2012-31/12/2012)

PUBLICATIONS IN PEER REVIEWED INTERNATIONAL JOURNALS

1) “ New High Temperature Polymer Electrolyte Membranes. Influence of the Chemical Structure on their Properties ”

N. Gourdoupi, **K. Papadimitriou**, S. Neophytides, J. K. Kallitsis, Fuel Cells, 3-4, **2008**, p.p. 200-208,. [Impact Factor (2008): 3,12]

2) “ Phosphonated fully aromatic polyethers for PEMFCs applications ”.

K. D. Papadimitriou, A. K. Andreopoulou, J. K. Kallitsis, J. Polym. Sci.Part A: Polym. Chem. 48, **2010**, p.p. 2817-2827, [Impact Factor (2010): 3.894]

3) “Novel Composites Materials from Functionalized Polymers and Silver Coated Titanium Oxide Capable for Calcium Phosphate Induction, Control of Orthopedic Biofilm Infections, and Avoid Tendon Calcification. An “*in vitro* Study”.

M. Tyllianakis, E. Dalas, M. Christofidou, I. Kallitsis, A. Chrissanthopoulos, P. G. Koutsoukos, C. Bartzavali, N. Gourdoupi, **K. Papadimitriou**, E. K. Oikonomou, S. N. Yannopoulos, Journal of Materials Science: Material in medicine, *21*, **2010**, p.p. 2201-2211 [Impact Factor (2010): 2.325]

4) “ Cross-Linking of Side Chain Unsaturated Aromatic Polyethers for High Temperature Polymer Electrolyte Membrane Fuel Cell Applications ”.

K. D. Papadimitriou, F. Paloukis, S. G. Neophytides, J. K. Kallitsis, Macromolecules, *44*, **2011**, p.p. 4942–4951, [Impact Factor (2011): 5.167]

5) “ Covalent Cross-Linking in Phosphoric Acid of Pyridine Based Aromatic Polyethers Bearing Side Double Bonds for Use in High Temperature Polymer Electrolyte Membrane Fuel Cells ”.

K. D. Papadimitriou, M. Geormezi, S. G. Neophytides, J. K. Kallitsis, Journal of membrane science, *433*, **2013**, p.p. 1-9 [Impact Factor (2011): 3.850]

PATENTS

1) “Crosslinked or non-crosslinked aromatic (co)polymers as proton conductors for use in high temperature PEM fuel cells” A. K. Andreopoulou, C. Morfopoulou, **K. D. Papadimitriou**, A. Vöge, F. Paloukis, S. G. Neophytides, J. K. Kallitsis, No.20110100058/7.02.2011 (Greek Patent)

2) “ Crosslinked or non-crosslinked aromatic (co)polymers as proton conductors for use in high temperature PEM fuel cells ” A. K. Andreopoulou, M. K. Daletou, I. Kalamaras, C. Morfopoulou, **K. D. Papadimitriou**, A. Vöge, F. Paloukis, S. G. Neophytides, J. K. Kallitsis, U.S. Pat. Appl. Publ. (2012), US 20120202129 A1 20120809.

CONFERENCES

1) **6th Hellenic Polymer Society Conference**, Patras, Greece, 3-5 November 2006.

2) **7th Hellenic Polymer Society Conference**, Ioannina, Greece, 28 September – 1 October 2008.

Poster Presentation: “ New High Temperature Polymer Electrolyte Membranes. Influence of the Chemical Structure on their Properties ”.

N. Gourdoupi, **K. Papadimitriou**, S. Neophytides, J. K. Kallitsis

3) **8th Hellenic Polymer Society Symposium**, Hersonissos, Crete, Greece 24-29 October 2010.

Poster Presentation: “ Side Chain Cross-Linking of Unsaturated Aromatic Polyethers for High Temperature Polymer Electrolyte Membrane Fuel Cells ”.

K. D. Papadimitriou, A. Vöge, F. Paloukis, S. G. Neophytides, J. K. Kallitsis

4) **2nd International Workshop on Degradation Issues of Fuel Cells**, Θεσσαλονίκη, 21-23 Σεπτεμβρίου, 2011.

Poster Presentation: “ Study of the Influence of Chemical Cross-Linking on Performance Stability of High Temperature Polymer Electrolyte Membrane Fuel Cells (PEMFCs) Operating at Temperatures up to 220°C ”.

K. D. Papadimitriou, M. Geormezi, S. G. Neophytides, J. K. Kallitsis.

5) **9th Hellenic Polymer Society Conference**, Thessaloniki, Greece, 29 November-1 December, 2012.

Oral Presentation: “ Covalent Cross-Linking in Phosphoric Acid of Pyridine Based Aromatic Polyethers Bearing Side Double Bonds for Use in High Temperature Polymer Electrolyte Membrane Fuel Cells ”.

K. D. Papadimitriou, M. Geormezi, S. G. Neophytides, J. K. Kallitsis.

PARTICIPATION TO SCHOOLS OF SCIENTIFIC INTEREST

1) “ CARISMA School on Proton Conductors: Materials and Mechanisms ” 7-10 November, 2007, Stuttgart ,Germany.

2) “ NanoMemCourse EF2: Nanostructured Material and Membrane Modeling and Simulation” 18-27 June, 2008, FORTH/ICE-HT, Patras.

3) “ NanoMemCourse EA1: Nanostructured Materials & Membranes for Energy ” 8-17 March, 2009, Skeikampen and Lillestrom, Norway.

Poster Presentation: “Synthesis and Characterization of Aromatic Polyethers Bearing Immobilized Phosphonate Units for Fuel Cells Applications.”.

K. D. Papadimitriou, A.K. Andreopoulou, J.K. Kallitsis.

4) “ SUSHGEN: Electrolytes for PEM Water Electrolysis ” 19-21 November, 2011, FORTH/ICE-HT, Patras.

TEACHING EXPERIENCE IN LABORATORY COURSES

- “**Chemistry of polymers**” , course of the fourth year of undergraduate students, Department of Chemistry, University of Patras (2006)
- “**Chemical Technology**” , course of the third year of undergraduate students, Department of Chemistry, University of Patras (2007)

FOREIGN LANGUAGES

- Certificate of Proficiency in English, University of Michigan

COMPUTER RELATED KNOWLEDGE

- Microsoft Office, Photoshop, Origin Professional, ChemDraw, Internet