

# Dr. MARIA VAMVAKAKI

## Associate Professor

University of Crete  
Department of Materials Science and Technology  
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Institute of Electronic Structure and Laser  
P. O. Box 1527  
711 10 Heraklion Crete, Greece  
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### PERSONAL

Nationality: Greek/New Zealand  
Date and Place of Birth: 16 June 1970, Wellington/New Zealand  
Marital Status: Married

### I. EDUCATION/QUALIFICATIONS

**October 1994 – February 1998**

**Doctor of Philosophy (DPhil) 1998 – Polymer Chemistry**

School of Chemistry, Physics and Environmental Science,  
University of Sussex, Falmer, Brighton, East Sussex, UK

Advisors: Professor Steven P. Armes and Professor Norman C. Billingham (Emeritus)

CASE award sponsors: TAM Ceramics Ltd (A Cookson Company)

Industrial advisor: Dr Ian Thompson

Thesis Title: Controlled Structure Water-Soluble Copolymers: Synthesis, Characterization and Application in High Performance Ceramics

**October 1993 – September 1994**

**Master of Philosophy (MPhil) - Analytical Chemistry**

Department of Chemistry, University of Crete, Greece

Advisor: Professor Nikolaos. A. Chaniotakis

**October 1989 – June 1993**

**Bachelor of Chemistry, First Class Honours (BSc (Hons))**

Department of Chemistry, University of Crete, Greece

G. P. A.: 8.38 / 10

Diploma Thesis: Transport of High Energy Biological Molecules through a Liquid Organic Phase Membrane Containing a Charged Ionophore

Advisor: Professor Nikolaos. A. Chaniotakis

### II. ACADEMIC APPOINTMENTS

*July 2011-*

**Associate Professor of Synthetic Materials Chemistry**

Department of Materials Science and Technology,  
University of Crete, Heraklion, Crete, Greece

*March 20011-June 2011*

***Sabbatical at MIT***

Department of Chemical Engineering,  
Cambridge, Boston, USA

*June 2008-June 2011*

**Assistant Professor (tenured) of Synthetic Materials Chemistry**

Department of Materials Science and Technology,  
University of Crete, Heraklion, Crete, Greece

*October 2004 - May 2008*

**Assistant Professor of Synthetic Materials Chemistry**

Department of Materials Science and Technology,  
University of Crete, Heraklion, Crete, Greece

*September 2002-September 2004*

**Visiting Associate Professor (PD 407)**

Department of Materials Science and Technology,  
University of Crete, Heraklion, Crete, Greece

- September 2001-September 2002 **Visiting Assistant Professor (PD 407)**  
Department of Materials Science and Technology,  
University of Crete, Heraklion, Crete, Greece
- September 1999-September 2000 **Visiting Assistant Professor**  
Department of Physical Sciences,  
University of Cyprus, Nicosia, Cyprus

### **III. RESEARCH APPOINTMENTS/EXPERIENCE**

- January 2009- **Affiliated Faculty Member**  
*Institute of Electronic Structure and Laser, F.O.R.T.H.*  
Heraklion, Crete, Greece  
"Bio-Organic Materials Chemistry Lab" – Synthetic Materials Chemistry
- September 2001-December 2008 **Research Scientist**  
*Institute of Electronic Structure and Laser, F.O.R.T.H.*  
Heraklion, Crete, Greece  
Nanocomplex Group – Synthesis of Polymer and Hybrid Materials
- June 2002-September 2004 **Visiting Scientist**  
School of Chemistry, Physics and Environmental Science,  
University Sussex, Falmer, Brighton, East Sussex, UK  
"Synthesis and Characterization of Polyampholytes and Water Soluble  
Polymers used in Smart Surfaces and Catalysis of Organic Reactions"
- September 2000-September 2001 **Research Fellow**  
Department of Chemistry  
University of Cyprus, Nicosia, Cyprus  
"Synthesis, Characterization, Modeling and Applications of Model  
Polymer Networks"
- February 2001-May 2001 **Guest Scientist**  
School of Chemistry, Physics and Environmental Science,  
University Sussex, Falmer, Brighton, East Sussex, UK  
"Synthesis and Characterization of Water Soluble Polymeric Surfactants  
by Atom Transfer Radical Polymerization"
- February 1999-September 1999 **R&D Chemist**  
R&D Department of the cosmetic company-Spray-Pack, Athens, Greece  
"Development and Improvement of Cosmetic and Household Product  
Formulations"
- September 1997-December 1998 **Research Fellow**  
School of Chemistry, Physics and Environmental Science,  
University Sussex, Falmer, Brighton, East Sussex, UK  
"Synthesis, Characterization and Solution Properties of Novel Water  
Soluble Block Copolymers"

### **IV. HONORS, AWARDS, DISTINCTIONS, FELLOWSHIPS**

1. 3<sup>rd</sup> award in the Panhellenic competition in mathematics 1985
2. 3<sup>rd</sup> award in the Cretan competition in Physics 1987
3. 1<sup>st</sup> or 2<sup>nd</sup> high school award yearly from 1984 to 1989
4. Human capital and mobility EU fellowship 1994-1996
5. Cookson Technology Centre Fellowship 1994-1997
6. University of Sussex – PhD Bursary 1994-1997
7. D. H. Richards Bursary - Macro Group UK 1997

8. "2<sup>nd</sup> Best Innovation by an Individual Researcher" Award, BMM group, IESL-FORTH for "Photosensitivematerials for two-photon polymerization" Photonics Innovation Village, SPIE Photonics Europe 2010

## **V. RESEARCH INTERESTS/SKILLS**

### **Topics**

Synthesis and characterization of novel functional monomers and (co)polymers.

Controlled (co)polymer synthesis via classical living techniques and controlled living free radical polymerization, with emphasis Group Transfer Polymerization (GTP) and Atom Transfer Radical Polymerization (ATRP).

Chemical modification of synthetic (co)polymers.

Synthesis of polymer brushes on flat and curved surfaces. Smart polymer surfaces.

Synthesis of colloidal polymer particles with emphasis on polymer microgels.

Model polymer networks Hydrogels.

Water-soluble/amphiphilic polymers. Polyelectrolytes. Polyampholytes.

Supramolecular Assemblies. Micellar structures. Surface modification of assembled nanostructures.

Biomimetic (co)polymers for antiadherent/antimicrobial applications.

Biologically active (co)polymers for biomedical applications (polymers and hydrogels for gene therapy and drug delivery)

'Smart', stimuli-responsive polymers.

Organic/Inorganic hybrid materials.

### **Techniques**

High Vacuum Techniques

Elementary analysis

Static and dynamic light scattering

Surface/Interfacial tensiometry, contact angle measurements

Zeta potential

Thermogravimetric analysis,

Differential scanning calorimetry

Disc centrifuge photosedimentometry (DCP)

Branauer-Emmet-Teller (BET)

Electron microscopies (SEM, TEM)

Atomic force microscopy

Viscometry

Chromatography: Aqueous and Non-aqueous GPC, HPLC, GC-MS, TLC

Spectroscopies: FTIR, UV-VIS, NMR, MS

## **VI. REVIEWER FOR SCIENTIFIC JOURNALS AND FUNDING ORGANIZATIONS**

Referee for International Journals:

*ACS Applied Materials & Interfaces*

*Acta Biomaterialia*

*Applied Physics A, Materials Science & Processing*

*Bioconjugate Chemistry*

*Biomacromolecules*

*Chemistry of Materials*

*Composites Science and Technology*

*Engineering in Life Sciences*

*European Physical Journal E*

*European Polymer Journal*

*eXPRESS Polymer Letters*

*Journal of Biomaterials Science*

*Journal of Colloid and Interface Science*

*Journal of Macromolecular Science*

*Journal of Materials Chemistry*

*Journal of Materials Science: Materials in Medicine*

*Journal of Nanostructured Polymers and Nanocomposites*

*Journal of Polymer Science Part A: Polymer Chemistry*

*Journal of Polymer Science Part B: Polymer Physics*

*Journal of the American Chemical Society*

*Langmuir*

*Macromolecular Chemistry & Physics*

*Macromolecules*

*Materials Chemistry and Physics*

*Nanoscale Research Letters (NRL)*

*Polymer*

*Polymer Chemistry*

*Sensors & Actuators: B. Chemical*

*Soft Matter*

*The Journal of Physical Chemistry*

Referee for Funding Organizations:

*National Science Foundation, U.S.A.*

*Ontario Centres of Excellence Research – Canada*

*Greek General Secretariat for Research and Technology*

*Ministry of Education*

*University of Patras – Programme "K. Karatheodori"*

*FP7 - NMP-2010-SME-5 (expert evaluator and rapporteur)*

*Scientific expert within the Joint Call on "Innovation" of ERA.Net RUS*

Rapporteur for the European Union	EU-SusChem Workshop on <i>Hybrid Materials, Setting the materials research agenda for Sustainable Chemistry</i> Luxembourg, March 2010
External Reviewer for the EU	Final review of the "IDECAT" European Network of Excellence (NoE) First review of indirect actions of the Project 258909 Heart-e-Gel

## **VII. PROFESSIONAL MEMBERSHIP**

American Chemical Society (ACS)  
Hellenic Polymer Society (**treasurer 2006-Currently**)  
Hellenic Society of Chemistry Chartered Chemist and Member  
Hellenic Society of Rheology  
Royal Society of Chemistry  
2011-Currently: Connoisseur of the Specific Configuration of the Programme Committee for the SP 'Cooperation'

## **VIII. FUNDED RESEARCH PROJECTS**

- "Controlled Structure Polymers for Use in High Performance Ceramics"  
Project Director: Prof. S. P. Armes, University of Sussex, Brighton, UK  
Collaborator: Dr. Ian Thompson, Cookson Technology Centre, U.K.  
**TAM Ceramics Ltd Research Programme**  
Duration: September 1994 – September 1997
- "Water-Soluble, Ionic Block Copolymers"  
Project Director: Prof. S. P. Armes, University of Sussex, Brighton, UK  
Collaborator: Dr. M. Vamvakaki, University of Sussex, Brighton, UK  
**EPSRC - UK**  
Reference Number: ROPA GR/L71803  
Duration: September 1997 – September 1998
- "Synthesis of Polymeric Surfactants by Atom Transfer Radical Polymerization (ATRP)"  
Project Director: Prof. S. P. Armes, University of Sussex, Brighton, UK  
Collaborators: Dr. M. Vamvakaki, University of Sussex, Brighton, UK  
**Syngenta AG Research Programme**  
Duration: June 2001 – September 2001
- "Amphiphilic Model Networks"  
Project Director: Prof. C. S. Patrickios, University of Cyprus, Nicosia, Cyprus  
Collaborators: Dr. M. Vamvakaki, University of Cyprus, Nicosia, Cyprus  
**University of Cyprus Research Programme**  
Duration: September 2000 – September 2003
- "Environmental Friendly Emulsions of Pesticides based on Water, using Polymeric Emulsifiers"  
Project Director: Prof. C. S. Patrickios, University of Cyprus, Nicosia, Cyprus  
Collaborators: Dr. M. Vamvakaki, University of Cyprus, Nicosia, Cyprus  
**Programme for Young Scientists, PENEK, Research Promotion Foundation, Cyprus,**  
Duration: September 2000 – September 2003
- "Synthesis and Application of Double-Hydrophilic Star Copolymers as Synthetic Carriers for Gene Therapy"  
Project Director: Prof. C. S. Patrickios, University of Cyprus, Nicosia, Cyprus  
Collaborators: Dr. M. Vamvakaki, University of Cyprus, Nicosia, Cyprus  
**Programme for Young Scientists, PENEK, Research Promotion Foundation, Cyprus,**  
Duration: September 2001 – September 2004
- "Colloidal Catalysts for Synthesis of Important Vitamins and Fragrant Substances: New Approach, New Advantages"  
Project Director: Prof. S. H. Anastasiadis, FO.R.T.H., Heraklion Crete, Greece  
Collaborators: Dr. M. Vamvakaki, FO.R.T.H., Heraklion Crete, Greece  
Dr. L. M. Bronstein, Nesmeyanov Inst. of Organoelement Compounds, Russia  
Prof. A. R. Khokhlov, Moscow State University, Russia  
Prof. A. N. Semenov, University of Leeds, U. K.  
Prof. E. M. Sulman, Tver Technical University, Russia  
Mr. A. T. Kirsanov, OAO "Belgorodvitaminy", Russia

**NATO Science for Peace Programme**

Reference Number: SfP - 974173

Total Budget: 18,990,000 Belgian Francs

NATO Funding: 12,300,000 Belgian Francs

FORTH Budget: 10,290,000 Belgian Francs

Duration: December 1999 - December 2004

8. "Synthesis, Characterization, Modelling and Applications of Amphiphilic Networks by RAFT Polymerization"  
 Project Director: Prof. C. S. Patrickios, University of Cyprus, Nicosia, Cyprus  
 Collaborators: Dr. M. Vamvakaki, University of Cyprus, Nicosia, Cyprus  
**Research Promotion Foundation, Cyprus,**  
 Duration: September 2004 – September 2006
9. "Hydrolyzable networks based on hydrolyzable cross-linkers: Synthesis, Characterization and Applications"  
 Project Director: Prof. C. S. Patrickios, University of Cyprus, Nicosia, Cyprus  
 Collaborators: Dr. M. Vamvakaki, University of Cyprus, Nicosia, Cyprus  
**Programme for Young Scientists, PENEK, Research Promotion Foundation, Cyprus,**  
 Duration: September 2004 – September 2007
10. "Tailored nanosized metal catalysts for improving activity and selectivity *via* engineering of their structure and local environment"  
 Coordinator: Prof. Dmitry Yu. Murzin, Åbo Akademi Univ., Turku, Finland  
 Co-proposers: Profs. S. H. Anastasiadis and M. Vamvakaki, FO.R.T.H., Heraklion Crete, Greece  
 Prof. E. M. Sulman, Tver State Technical University, Tver, Russia  
 Prof. M. Che, Université Pierre et Marie Curie, Paris, France  
 Prof. D. Duka, University of Palermo, Palermo, Italy  
 Prof. J. H. Bitter, Utrecht Univ., Utrecht, The Netherlands  
 Dr. U. Dingerdissen, Degussa, Frankfurt, Germany

**Specific Targeted Research or Innovation Projects**

Reference Number: NMP3-CT-2005-506621 (NANOCAT)

Total Budget: 3.188.000 Euro

EU Funding: 1.920.750 Euro

FORTH Budget: 378.000 Euro

Duration: February 2005 – January 2008

11. "Synthesis of organic microcavities for optoelectronic devices"  
 Project Director: Prof. P. G. Savvidis, Univ. of Crete, Heraklion Crete, Greece  
 Co-proposers: Prof. N. Pelekanos, Univ. of Crete, Heraklion Crete, Greece  
 Prof. M. Vamvakaki, Univ. of Crete, Heraklion Crete, Greece  
 Dr. G. Konstantinidis, FO.R.T.H., Heraklion Crete, Greece  
 Dr. I. Aperathitis, FO.R.T.H., Heraklion Crete, Greece  
**Programme Pythagoras II, Ministry of Education and Religious Affairs, Greece**  
 Total Budget: 130.000 Euro  
 Duration: September 2005 – August 2006
12. "Phenols of industrial wastewaters: detection, conversion, degradation"  
 Project Director: Prof. S. H. Anastasiadis, FO.R.T.H., Heraklion Crete, Greece  
 Collaborators: Prof. M. Vamvakaki, FO.R.T.H., Heraklion Crete, Greece  
 Prof. A. R. Khokhlov, Moscow State University, Russia  
 Prof. A. Eisenberg, McGill University, Canada  
 Dr. L. M. Bronstein, Nesmeyanov Inst. of Organoelement Compounds, Russia  
 Prof. E. M. Sulman, Tver State University, Russia  
 Prof. K. Zhubanov, Res. Inst. of New Chemical Technologies & Materials, Kazakhstan  
 Mr. S. Tkachov, Center of Water Technologies, Russia  
 Prof. M. Nauryzbaev, Kazakh National al-Farabi University, Kazakhstan

**NATO Science for Peace Programme**

Reference Number: SfP - 981438

Total Budget: 350.000 Euro

NATO Funding: 350.000 Euro

FORTH Budget: 26.000 Euro

Duration: November 2005 - December 2010

13. "Development of nanostructured polymer/inorganic hybrids for random lasing applications"  
 Project Director: Prof. S. H. Anastasiadis, FO.R.T.H., Heraklion Crete, Greece  
 Co-proposers: Drs. D. Anglos, A. Lappas, & K. Chrissopoulou, FO.R.T.H., Heraklion Crete, Greece  
 Profs. M. Vamvakaki and P. Trikalitis, Univ. of Crete, Heraklion Crete, Greece  
 Dr. N. Theophilou, S&B Industrial Minerals S.A., Athens, Greece  
 Mr. G. Papadopoulos, Analytikos Siskeves S.A., Athens, Greece  
**Programme for the Improvement of Human Potential 2003 (General Secretariat of Research and Technology, Greece)**

Total Budget: 228.000 Euro                                  GSRT Funding: 205.000 Euro  
 Duration: October 2005 – September 2008

14. “Biochips based on membrane layers for protein analysis”  
 Project Director: Prof. H. Gizeli, FO.R.T.H., Heraklion Crete, Greece  
 Co-proposers: Profs. M. Vamvakaki and A. Oikonomou, FO.R.T.H., Heraklion Crete, Greece  
 G. Kordomatis, G. Kordopatis Ltd Analytical Instruments – Diagnostics, Athens, Greece  
**Programme for the Improvement of Human Potential 2003 (General Secretariat of Research and Technology, Greece)**  
 Total Budget: 137.208 Euro                                  GSRT Funding: 123.487 Euro  
 Duration: October 2005 – September 2008
15. “Responsive ABC Triblock Copolymers: Solution Properties and Metal Nanoparticle Formation”  
 Project Director: Prof. M. Vamvakaki, University of Crete, Heraklion Crete, Greece  
**University of Crete, The Secretariat of the Research Committee**  
 Total Budget: 5.500 Euro  
 Duration: October 2007 – September 2009
16. “Hierarchically Organized Metal Organic Catalysts for Continuous and Multi-batch Processes”  
 Coordinator: Dr. D. Wolf, Evonik Degussa GmbH, Germany  
 Co-proposers: Prof. M. Vamvakaki, FO.R.T.H., Heraklion Crete, Greece  
 Prof. D. Vogt, University of Eindhoven, The Netherlands  
 Prof. H. C. L. Abbenhuis, Hybrid Catalysis (SME), The Netherlands  
 Prof. K. Grela, Institute of Organic Chemistry, Polish Academy of Sciences, Poland  
 Prof. A. Livingston, Imperial College London, UK  
 Dr. A. Boam, Membrane Extraction Technology Ltd. (SME), UK  
 Prof. J. Freire, Universidad Nacional de Educación a Distancia, Spain  
**FP7-NMP-2007-SMALL-1**  
 Reference Number: CP-FP 214095-2 (HiCat)  
 Total Budget: 3.865.212 Euro                                  EU Funding: 2.647.217 Euro  
 FORTH Budget: 526.520 Euro  
 Duration: November 2008 – October 2011
17. “Novel Devices based on Hybrid Materials prepared by Laser-Based Nanoparticle Generation in the presence of Functional Organic Polymers”  
 Coordinator: Prof. M. Vamvakaki, FO.R.T.H., Heraklion Crete, Greece  
 Co-proposers: Dr. S. Barcikowski, Laser Zentrum-Hannover e.V., Hannover, Germany  
**Programme for the promotion of the exchange and scientific cooperation between Greece and Germany, Programme IKYDA 2009**  
 Total Budget: 10.000 Euro  
 Duration: January 2009 – December 2010
18. “Modern polymer-based catalysts and microflow conditions as key elements of innovations in fine chemical synthesis”  
 Coordinator: Prof. Dr. Volker Hessel, Institut für Mikrotechnik Mainz GmbH, Germany  
 Co-proposers: Profs. S. H. Anastasiadis and M. Vamvakaki, FO.R.T.H., Heraklion Crete, Greece  
 Dr. Christophe Daubie, Sanofi Aventis, France  
 Dr. Alexandra Grosse-Böwing, Bayer Technology Services R&D, Germany  
 Dr. Jürgen E. Lang, Evonik Degussa GmbH, Germany  
 Dr. Olaf Stange, Ehrfeld Mikrotechnik BTS, Germany  
 Dr. László Úrge, ThalesNano Inc., Hungary  
 Dr. Vladimir Dovganyuk, Sud-Chemie Alvigo Catalysts, Estonia  
 Mr. Sven Lindfors, Picosun Oy, Finland  
 Prof. Dr. Matthias Ballauff, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Germany  
 Prof. Galip Akay, University of Newcastle upon Tyne, UK  
 Prof. Dr. Claude de Bellefon, Centre National de la Recherche Scientifique, France  
 Prof. Dr. Lioubov Kiwi-Minsker, Ecole Polytechnique Fédérale de Lausanne, Switzerland  
 Prof. Dmitry Murzin, Åbo Akademi University, Finland  
 Prof. D. Duca, University of Palermo, Italy  
 Dr. Dana Kralisch, Friedrich-Schiller-Universität Jena, Germany  
 Prof. J. C. Schouten, Eindhoven University of Technology, The Netherlands  
 Dr. Lyudmila Bronstein, Nesmeyanov Institute of Organoelement Compounds of Russian Academy of Science, Russia  
 Prof. Esther Sulman, Tver Technical University, Russia

**FP7-NMP-2009-LARGE-3**

Reference Number: CP-IP 246095-2 (POLYCAT)

Total Budget: 10.063.663 Euro  
FORTH Budget: 493.348 Euro  
Duration: September 2010 – August 2013

EU Funding: 6.998.220 Euro

## IX. TEACHING

### University of Cyprus (October 1999 – September 2000)

Academic Year	Fall Semester	Spring Semester
1999-2000	<ul style="list-style-type: none"> <li>Organic Chemistry III</li> <li>Laboratory of Organic Chemistry I</li> </ul>	<ul style="list-style-type: none"> <li>Environmental Chemistry</li> <li>Laboratory of Analytical Chemistry II</li> </ul>

### University of Crete (September 2001 - )

Academic Year	Fall Semester	Spring Semester
2001-2002	<ul style="list-style-type: none"> <li>Laboratory of General Chemistry</li> </ul>	
2002-2004	<ul style="list-style-type: none"> <li>Laboratory of General Chemistry</li> </ul>	<ul style="list-style-type: none"> <li>Materials Synthesis</li> </ul>
2004-2008	<ul style="list-style-type: none"> <li>Laboratory of Polymer Synthesis and Characterization</li> </ul>	<ul style="list-style-type: none"> <li>Laboratory of General Chemistry</li> <li>Polymer Synthesis (undergraduate and graduate course)</li> </ul>
2009-	<ul style="list-style-type: none"> <li>Laboratory of Polymer Synthesis and Characterization</li> <li>Laboratory of Materials Chemistry (with Dr. G. Armatas)</li> </ul>	<ul style="list-style-type: none"> <li>Laboratory of General Chemistry</li> <li>Polymer Synthesis (undergraduate and graduate course)</li> </ul>

#### Seminars:

Nuclear Magnetic Resonance (NMR) Spectroscopy to colleagues from the industry, Department of Chemistry, University of Cyprus

*Assistant in Instruction*, University of Crete, Heraklion, Crete, Greece. 1993.

Tutor on the Chromatographic Methods of Analysis of an undergraduate course "Laboratory of Analytical Chemistry"

*Assistant in Instruction*, University of Crete, Heraklion, Crete, Greece. 1991.

Assisted in the instruction of an undergraduate course "Laboratory of General Chemistry"

## X. STUDENT SUPERVISION

Doctorates (Ph.D.'s)		
Dr. V. Bütün (training)	Ph.D. 1999	Univ. of Sussex, UK (Supervisor S. P. Armes) now Eskisehir Osmangazi University, Turkey
Dr. L. Bailey (training)	Ph.D. 2001	Univ. of Sussex, UK (Supervisor S. P. Armes)
Dr. S. Hadjiyannakou	Ph.D. 2004	Univ. of Cyprus (with C. S. Patrickios), Presently State Chemistry Laboratory, Nicosia, Cyprus
Dr. T. Georgiou	Ph.D. 2006	Univ. of Cyprus (with C. S. Patrickios), then Department of Bioengineering, Rice University, Houston, TX, USA (with A.G.Mikos), presently Department of Chemistry, University of Hull, UK
Dr. A. Triftaridou	Ph.D. 2006	Univ. of Cyprus (with C. S. Patrickios), then Department of Chemistry, University of Minnesota, Minneapolis USA presently E.S.P.C.I., Paris, France
Dr. A. Mateescu	Ph.D. 2009	Univ. of Crete, Presently Univ. of Crete & FO.R.T.H., Greece
Ms. D. Achilleos	Ph.D. Candidate	Univ. of Crete
Mr. F. Krasanakis	Ph.D. Candidate	Univ. of Crete

Masters (M.Sc.'s)		
Mr. E. Loizidou	M.Sc. 1997	Univ. of Cyprus (with C. S. Patrickios)
Mr. G. Hadjikallis	M.Sc. 1998	Univ. of Cyprus (with C. S. Patrickios)
Mr. B. Katsamanis	M.Sc. 2003	Univ. of Crete (with S. H. Anastasiadis)
Mr. A. Afratis	M.Sc. 2005	Univ. of Crete (with S. H. Anastasiadis and K. Chrissopoulou)
Ms. D. Palioura	M.Sc. 2005	Univ. of Crete (with S. H. Anastasiadis)
Ms. D. Achilleos	M.Sc. 2008	Univ. of Crete, presently Univ. of Crete
Mr. K. Xristodoulakis	M.Sc. 2008	Univ. of Crete, presently Greek Army



Mr. F. Krasanakis	M.Sc. 2008	University of Crete (with K. Chrissopoulou)
Mr. P. Falireas	M.Sc. 2010	Univ. of Crete
Ms. D. Moatsou	M.Sc. candidate	Univ. of Crete
Ms. E. Kampouraki	M.Sc. candidate	Univ. of Crete, (with M. Farsari)
Ms. M. Bergaki	M.Sc. candidate	Univ. of Crete

<b>Undergraduate Senior Thesis</b>		
Ms. A. Triftaridou	Senior Thesis	Univ. of Cyprus (with C. S. Patrickios), B.S. 2000
Ms. E. Demosthenous	Senior Thesis	Univ. of Cyprus (with C. S. Patrickios), B.S. 2000
Mr. S. Georgiadis	Senior Thesis	Univ. of Cyprus (with C. S. Patrickios), B.S. 2001
Ms. T. Georgiou	Senior Thesis	Univ. of Cyprus (with C. S. Patrickios), B.S. 2001
Ms. M. Kyriakou	Senior Thesis	Univ. of Cyprus (with C. S. Patrickios), B.S. 2001
Ms. A.-M. Christoforou	Senior Thesis	Univ. of Cyprus (with C. S. Patrickios), B.S. 2001
Ms. T. Afchoudia	Senior Thesis	Univ. of Crete (with S. H. Anastasiadis), B.S. 2003
Mr. K. Xristodoulakis	Senior Thesis	Univ. of Crete, B.S. 2006
Mr. F. Krasanakis	Senior Thesis	Univ. of Crete (with K. Chrissopoulou), B.S. 2006
Mr. N. Manolakis	Senior Thesis	Univ. of Crete, B.S. 2006
Mr. P. Falireas	Senior Thesis	Univ. of Crete, B.S. 2007
Ms. A. Giakoumaki	Senior Thesis	Univ. of Crete (with M. Farsari), B.S. 2008
Ms. D. Moatsou	Senior Thesis	Univ. of Crete, B.S. 2009
Ms. E. Kampouraki	Senior Thesis	Univ. of Crete (with M. Farsari), B.S. 2008
Mr. K. Stoikos	Bachelor candidate	Univ. of Crete
Ms. M. Kissamitaki	Bachelor candidate	Univ. of Crete

## **XI. POST-DOCTORAL FELLOW SUPERVISION**

Dr. G. Pasparakis	Ph.D. 2008, University of Nottingham	2009 -
Dr. A. Mateescu	Ph.D. 2009, Univ. of Crete	2009 - 2010
Dr. M. Kaliva	Ph.D. 2004, Univ. of Crete	2011 -

**XII. PUBLISHED WORK****1. PUBLICATIONS IN REFEREED JOURNALS**

1. **M. Vamvakaki**, N.A. Chaniotakis\*  
“Solid-contact ion-selective electrode with stable internal electrode”  
*Analytica Chimica Acta* **1996**, 320(1), 53.
2. V. Butun, C.E. Bennett, **M. Vamvakaki**, A.B. Lowe, N.C. Billingham, S.P. Armes\*  
“Selective Betainisation of Tertiary Amine Methacrylate Block Copolymers”  
*J. Mater. Chem.* **1997**, 7(9), 1693.
3. **M. Vamvakaki**, N.C. Billingham, S.P. Armes\*  
“Synthesis of Novel Block and Statistical Methacrylate-based Ionomers Containing Acidic, Basic or Betaine Residues”  
*Polymer* **1998**, 39, 2331.
4. **M. Vamvakaki**, N.C. Billingham, S.P. Armes\*  
“Synthesis of water-soluble statistical copolymers and terpolymers containing pendent oligo(ethylene glycol derivatives)”  
*Polymer* **1999**, 40, 5161.
5. **M. Vamvakaki**, N.C. Billingham, S.P. Armes\*  
“Synthesis of Controlled Structure Water-Soluble Diblock Copolymers via Oxyanionic Polymerization”  
*Macromolecules* **1999**, 32, 2088.
6. V. Bütün, **M. Vamvakaki**, N.C. Billingham, S.P. Armes\*  
“Synthesis and aqueous solution properties of novel neutral/acidic block copolymers”  
*Polymer* **2000**, 41, 3173.
7. A.B. Lowe, **M. Vamvakaki**, M.A. Wassall, L. Wong, N.C. Billingham, S.P. Armes, A.W. Lloyd\*  
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“Stimuli Responsive Homopolymer and Block Polymer Brushes by Surface-Initiated Polymerization”  
*in preparation.*
71. D. S. Achilleos and **M. Vamvakaki**\*  
“Surface-Initiated Atom Transfer Radical Polymerization from Inorganic Nanoparticles”  
*in preparation.*

## **2. INVITED CHAPTERS IN BOOKS**

1. A. Ovsianikov, B. Chichkov,\* M. Oubaha, P. Copperwhite, B. D. MacCraith, A. Gaidukeviciute, I. Sakellari, A. Giakoumaki, D. Gray, **M. Vamvakaki**, M. Farsari, C. Fotakis  
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### 3. **PUBLICATIONS IN CONFERENCE PROCEEDINGS (included in the Citation Index)**

1. **M. Vamvakaki**, S.P. Armes, N.C. Billingham  
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### XIII. CONFERENCE PRESENTATIONS

#### 1. INVITED TALKS (SELF AND BY CO-WORKERS)

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“Fabrication of three-dimensional scaffolds by direct laser writing”  
*SPIE Photonics Europe*, Brussels, Belgium, April 2010.
7. **M. Vamvakaki**  
“Synthesis and characterization of novel glycosurfaces by surface-initiated polymerization”  
*PACIFICHEM 2010*, Honolulu, Hawaii, USA, December 2010.
8. **M. Vamvakaki**  
“Glycopolymer modified surfaces: Synthesis, characterization and applications”  
*241th ACS National Meeting*, Anaheim, CA, U.S.A., March 2011.
9. D. S. Achilleos and **M. Vamvakaki**  
“Multiresponsive Copolymers prepared by ATRP”  
*2<sup>nd</sup> Controlled/Living Polymerization: From Synthesis to Applications, CLP'11*, Antalya, Turkey, April 2011.
10. “Stimuli Responsive and reactive Polymer Systems”

*51st High Polymer Research Group (HPSG) Meeting, Pott Shrigley, UK, April 2011.*

11. **M. Vamvakaki**  
 “Smart and Biomimetic Surfaces based on Functional Polymer Brushes”  
*International Symposium on Ionic Polymerization, IP'11, Akron, OH, U.S.A., July 2011*

## 2. CONTRIBUTED PRESENTATIONS

1. N.A. Chaniotakis, J.K. Tsagatakis, **M. Vamvakaki**, K. Jurkschat  
 “Novel Tin (IV)-Based Potentiometric Phosphate Carriers”  
*1994 Pittsburgh, Conference and Exposition, Pittcon '94, Illinois, USA, February 27-March 4, 1994.*
2. N.A. Chaniotakis, J. Tsagatakis, **M. Vamvakaki**, G. Andredakis, S.J. West  
 “Partitioning of Anions into Lipophilic Organic Phases Determined by Direct Conductivity Measurements”  
*1995 Pittsburgh Conference and Exposition, Pittcon '95, New Orleans, Louisiana, USA, March 5-10, 1995.*
3. **M. Vamvakaki**, S.P. Armes, N.C. Billingham  
 “Synthesis of Methacrylate-Based Copolymers *via* Group Transfer Polymerization”  
*Sixth Macro-Group UK Family Meeting-Aspects of Contemporary Polymer Science, Manchester U.K., April 1996.*
4. **M. Vamvakaki**, V. Butun, S.P. Armes, N.C. Billingham  
 “Synthesis and Solution Properties of Novel Hydrophilic-Hydrophilic Block Copolymers *via* Group Transfer Polymerization”  
*Macro-Group UK Spring Meeting '97 for Younger Researchers, Leeds U.K., April 1997.*
5. **M. Vamvakaki**, S.P. Armes, N.C. Billingham  
 “Synthesis of Methacrylate-Based Copolymers *via* Group-Transfer-Polymerization”  
*213<sup>th</sup> ACS National Meeting, San Francisco, CA, USA, August 1997.*
6. **M. Vamvakaki**, S.P. Armes, N.C. Billingham  
 “Synthesis and Characterization of Novel Hydrophilic-Hydrophilic Statistical Copolymers and Terpolymers”  
*IUPAC International Conference, Gold Coast, Australia, July 1998.*
7. 9<sup>th</sup> Light Scattering University, Santa Barbara, CA, October 1998.
8. L. Bailey, **M. Vamvakaki**, N.C. Billingham, S.P. Armes  
 “Synthesis and Aqueous Solution Properties of Novel Hydrophilic/Hydrophilic Block Copolymers Based on Tertiary Amine Methacrylates and Poly(ethylene oxide)”  
*218<sup>th</sup> ACS National Meeting, New Orleans, USA, August 1999.*
9. S.C Hadjiyiannakou, **M. Vamvakaki**, C.S. Patrickios, E.N. Yamasaki, L.A. Phylactou  
 “Double-Hydrophilic Block Copolymers Bearing Diol and Tertiary Amine Groups: Synthesis, Aqueous Solution Characterization and Potential Application for Gene Therapy”  
*IUPAC Polymer Congress, Warsaw, Poland, July 2000.*
10. **M. Vamvakaki**, E.N. Yamasaki, S.C Hadjiyiannakou, C.S. Patrickios  
 “Characterization and Modeling of Hydrophilic Networks Synthesized by Group Transfer Polymerization”  
*15<sup>th</sup> Polymer Networks Group Meeting, Krakow, Poland, July 2000.*
11. **M. Vamvakaki**, C.S. Patrickios  
 “Polyelectrolytic Amphiphilic Model Networks in Water: Synthesis, Characterization of the Degree of Swelling and Microphase Separation Theory”  
*ECIS Conference, Patras, Greece, September 2000.*

12. S.C Hadjiyiannakou, **M. Vamvakaki**, C.S. Patrickios, E.N. Yamasaki, L.A. Phylactou  
“Double-Hydrophilic Diblock Copolymers Bearing Diol and Tertiary Amine Groups: Synthesis, Aqueous Solution Characterization and Potential Application for Gene Therapy”  
*ECIS Conference*, Patras, Greece, September 2000.
13. C.S. Patrickios, **M. Vamvakaki**  
“Polyelectrolytic Amphiphilic Model Networks In Water: Synthesis and Characterization”  
*221<sup>st</sup> ACS National Meeting*, San Diego, USA, April 2001.
14. E. Loizidou, D. Haralambous, **M. Vamvakaki**, C.S. Patrickios, T. Krasia, M. Antonietti  
“AB Diblock and ABC Triblock Amphiphilic Copolymers Containing Fluorine: Synthesis by Group Transfer Polymerization (GTP) and Aqueous Solution Characterization”  
*221<sup>st</sup> ACS National Meeting*, San Diego, USA, April 2001.
15. S.C. Hadjiyiannakou, T. Georgiou, **M. Vamvakaki**, C.S. Patrickios  
“Double-Hydrophilic Linear and Star Copolymers Bearing Diol and Tertiary Amine Groups: Synthesis and Aqueous Solution Characterization”  
*221<sup>st</sup> ACS National Meeting*, San Diego, USA, April 2001.
16. **M. Vamvakaki**, C.S. Patrickios  
“Model Networks Based on Cross-linked Star Polymers: Synthesis and Swelling Behavior”  
*IUPAC 2001*, Crete, Greece, October 2001.
17. A.I. Triftaridou, **M. Vamvakaki**, C.S. Patrickios, L. Lue  
“Synthesis, Aqueous Solution Characterization, and Modeling of Amphiphilic ABC Triblock Copolymers”  
*IUPAC 2001*, Crete, Greece, October 2001.
18. **M. Vamvakaki**, C.S. Patrickios  
“Amphiphilic Model Networks Based on Cross-linked Star Polymers”  
*Seventh Cyprus-Greece Chemistry Conference*, Nicosia, Cyprus, November 2001.
19. S.C. Hadjiyiannakou, **M. Vamvakaki**, C.S. Patrickios, E. Hadjikostas, A. Hadjimanolis, D. E. Soukiouoglou, P. Alexandridis  
“Characterization of Poly(ethylene oxide) - block - Poly(propylene oxide) - block - Poly(ethylene oxide) Triblock Copolymers and Their Evaluation as Emulsifiers”  
*Seventh Cyprus-Greece Chemistry Conference*, Nicosia, Cyprus, November 2001.
20. A.I. Triftaridou, **M. Vamvakaki**, C.S. Patrickios, C. Tsitsilianis  
“Water-Soluble Linear and Star ABC Triblock Terpolymers: Synthesis and Characterization”  
*Seventh Cyprus-Greece Chemistry Conference*, Nicosia, Cyprus, November 2001.
21. T. Georgiou, S.C. Hadjiyiannakou, **M. Vamvakaki**, C.S. Patrickios  
“Synthesis and Aqueous Solution Characterization of Homopolymers and Double - Hydrophilic Block and Star Copolymers Bearing Diol Groups”  
*Seventh Cyprus-Greece Chemistry Conference*, Nicosia, Cyprus, November 2001.
22. A.I. Triftaridou, **M. Vamvakaki**, C.S. Patrickios  
“Synthesis, Characterization, and Modeling of ABC Triblock Copolymers”  
*Seventh Cyprus-Greece Chemistry Conference*, Nicosia, Cyprus, November 2001.
23. **M. Vamvakaki**  
“Controlled Structure Copolymers for Ceramic Dispersion”  
*5<sup>th</sup> Panhellenic Polymer Conference*, Heraklion, Crete, December 2001.
24. T. Georgiou, E. Themistou, A. I. Triftaridou, S. C. Hadjiyiannakou, **M. Vamvakaki**, C.S. Patrickios,  
“Nano-engineered model networks: Synthesis, characterization and modelling”  
*223<sup>rd</sup> ACS National Meeting*, Orlando, Florida, USA, April 2002.
25. **M. Vamvakaki**, A. I. Triftaridou and C. S. Patrickios  
“Synthesis, Characterization and Modeling of Polyelectrolytic Amphiphilic Model Hydrogels”

*Molecular Order and Mobility in Polymer Systems, 4<sup>th</sup> International Symposium, St. Petersburg, Russia, June 2002.*

26. **M. Vamvakaki**, C. S. Patrickios, S. P. Armes, N. C. Billingham, and S. H. Anastasiadis  
 “Electrolytic Crosslinked Star Polymers in Water: Synthesis and Characterization of the Degree of Swelling”  
*International Conference on Polymer Synthesis, Warwick, U.K., July 2002.*
27. L. Papoutsakis, P. Fragouli, **M. Vamvakaki**, H. Iatrou, S. Sidorov, V. Zhirov, L. Bronstein, N. Hadjichristidis and S.H. Anastasiadis  
 “The effect of pH on the micellization of PEO-b-P2VP block copolymers in aqueous solution and the formation of metal nanoparticles”  
*XVIII Panhellenic Conference of Solid State Physics and Material Science, Crete, Greece, September 2002.*
28. **M. Vamvakaki**, C. S. Patrickios, S. P. Armes and N. C. Billingham  
 “Synthesis, Characterization and Applications of Water Compatible Polymeric Materials”  
*19<sup>th</sup> Pan-Hellenic Conference on Chemistry, Heraklion, Greece, November, 2002.*
29. L. Papoutsakis, P. Fragouli, **M. Vamvakaki**, H. Iatrou, S. Sidorov, V. Zhirov, L. Bronstein, N. Hadjichristidis, and S. H. Anastasiadis  
 “Micellization and Metal Nanoparticle Formation in Aqueous Solutions of PEO-b-PV2P Diblock Copolymers as a Function of pH”  
*19<sup>th</sup> Pan-Hellenic Conference on Chemistry, Heraklion, Greece, November, 2002.*
30. M. Kostylev, L. Bronstein, J. W. Zwanziger, L. Papoutsakis, **M. Vamvakaki**, S. H. Anastasiadis  
 “Micellar Behavior and Metal Nanoparticle Formation in pH-Sensitive Amphiphilic Block Copolymers in Water”  
*AIChE Annual Meeting, Indianapolis, IN, USA, November 2002.*
31. **M. Vamvakaki**, B. Katsamanis, T. Afchoudia, L. Papoutsakis, S. Sidorov, V. Zhirov, M. Kostylev, S. P. Armes N. C. Billingham, L. Bronstein, and S. H. Anastasiadis  
 “pH-Responsive Diblock Copolymers in Aqueous Solution: Micellization and Metal Nanoparticle Formation”  
*European Science Foundation Conference on Complex Fluid Interfaces, San Feliu de Guixols, Spain, March 2003.*
32. A.I. Triftaridou, **M. Vamvakaki**, C.S. Patrickios  
 “Synthesis and Characterization of Amphiphilic Linear and Star ABC Triblock Copolymers”  
*225<sup>th</sup> ACS National Meeting, New Orleans, USA, March 2003.*
33. S.C. Hadjiyannakou, **M. Vamvakaki**, C.S. Patrickios  
 “Synthesis and Characterization of Amphiphilic Diblock Copolymer Emulsifiers”  
*225<sup>th</sup> ACS National Meeting, New Orleans, USA, March 2003.*
34. S. H. Anastasiadis, **M. Vamvakaki**, L. Papoutsakis, V. Katsamanis, P. Fragouli, H. Iatrou, N. Hadjichristidis, S. Sidorov, V. Zhirov, M. Kostylev and L. Bronstein  
 “Micellar Behavior and Metal Nanoparticle Formation in pH-sensitive Amphiphilic Block Copolymers in Aqueous Media”  
*EMCC-3, 3<sup>rd</sup> Chemical Engineering Conference for Collaborative Research in Eastern Mediterranean, Thessaloniki, Greece, May 2003.*
35. V. Katsamanis, L. Papoutsakis, **M. Vamvakaki**, S. Sidorov, V. Zhirov, M. Kostylev, L. Bronstein, and S. H. Anastasiadis  
 “Micellization and Metal Nanoparticle Formation in Aqueous Solutions of PHEGMA-*b*-PDEAEMA Diblock Copolymers”  
*4<sup>th</sup> Panhellenic Chemical Engineering Conference, Patras, Greece, May 2003.*
36. **M. Vamvakaki**, S.P. Armes and N.C. Billingham  
 “Double Hydrophilic Block Copolymers”  
*4<sup>th</sup> Panhellenic Chemical Engineering Conference, Patras, Greece, May 2003.*

37. T. K Georgiou, E. N Yamasaki, L. A Phylactou, **M. Vamvakaki**, and C. S Patrickios  
“Cationic methacrylate homo- and co-polymer stars: Synthesis, characterization and evaluation as transfection Reagents”  
*227<sup>th</sup> ACS National Meeting*, Anaheim, USA, March-April 2004.
38. S. H. Anastasiadis, V. Katsamanis, T. Afchoudia, M. Vamvakaki, S. Sidorov, M. Kostylev and L. Bronstein  
“Aqueous Solution Behavior and Metal Nanoparticle Formation in pH-responsive Amphiphilic Diblock Copolymers”  
*General Meeting 04, American Physical Society*, Montreal, Canada, March 2004.
39. **M. Vamvakaki**, V. Katsamanis, L. Papoutsakis, S. H. Anastasiadis, S. Sidorov, V. Zhirov, M. Kostylev and L. Bronstein  
“Aqueous Solution Properties of pH-responsive PHEGMA-*b*-PDEAEMA Diblock Copolymers and the Formation of Colloidal Metal Particles”  
*International Conference “Modern Trends in Organoelement and Polymer Chemistry” (INEOS 50)*, Russian Academy of Sciences, Moscow, Russia, May-June 2004.
40. **M. Vamvakaki**  
“Functional copolymers as ceramic dispersants in aqueous media”  
*From Hard to Ultrasoft Colloids (HUSC)*, Koutouloufari, Crete, Greece, June 2004.
41. **M. Vamvakaki**, V. Katsamanis, L. Papoutsakis, S. H. Anastasiadis, M. Kostylev and L. Bronstein  
“pH-Sensitive Diblock Copolymers: Aqueous Solution Properties and the Formation of Platinum Metal Nanoparticles”  
*From Hard to Ultrasoft Colloids (HUSC)*, Koutouloufari, Crete, Greece, June 2004.
42. M. Vamvakaki, V. Katsamanis, L. Papoutsakis, T. Afchoudia, S. H. Anastasiadis, P. Fragouli, H. Iatrou, N. Hadjichristidis, S. P. Armes, S. Sidorov, D. Zhirov, V. Zhirov, M. Kostylev and L. Bronstein  
“Micellar Behavior and Metal Nanoparticle Formation in pH-sensitive Amphiphilic Block Copolymers in Aqueous Media”  
*128<sup>th</sup> Faraday Discussion on “Self-Organising Polymers”*, University of Leeds, U.K. July 2004.
43. C. S. Patrickios, T. K. Georgiou, E. Themistou, E. N. Yamasaki, **M. Vamvakaki** and L. A. Phylactou  
“Polymethacrylate Stars as Synthetic Gene Delivery Vehicles”  
*2<sup>nd</sup> International Conference on Tissue Engineering*, Crete, Greece, May 2005.
44. **M. Vamvakaki**, D. Palioura, A. Spyros, and S. H. Anastasiadis  
“Responsive Polymeric Materials and Formation of Metal Nanocrystals”  
*5<sup>th</sup> Panhellenic Chemical Engineering Conference*, Thessaloniki, Greece, May 2005.
45. S. H. Anastasiadis, **M. Vamvakaki**, D. Palioura, V. Katsamanis, T. Afchoudia, A. Spyros, M. Kostylev, L. M. Bronstein  
“Formation of Colloidal Metal Nanoparticles in pH-sensitive Polymer Microgels”  
*European Polymer Congress 2005 European Polymer Federation*, Moscow, Russia, June 2005.
46. C. S Patrickios, **M. Vamvakaki**, A.I. Triftaridou, E. Themistou, T. K. Georgiou, D. Kafouris, N. Hadjiantoniou, M. Karbarz  
“Three Different Types of Polymethacrylate Model Networks: Synthesis, Characterization and Modelling”  
*Polymer Gels and Networks on the occasion of 75<sup>th</sup> birthday of Prof. Karel Dusek, 44<sup>th</sup> Microsymposium on Macromolecules*, Prague, Czech Republic, July 2005.
47. G. B. Webber, K. Sakai, E. J. Wanless, S. P. Armes, **M. Vamvakaki**, V. Bütün, S. Biggs  
“Preparation, Characterisation and Utilisation of Diblock Copolymer Micelle Thin-Films and Multilayers”  
*7<sup>th</sup> World Congress of Chemical Engineering*, Glasgow, United Kingdom, July 10-14, 2005.
48. K. Sakai, G. B. Webber, V. Bütün, **M. Vamvakaki**, S. P. Armes, S. Biggs

“Self-Assembled Diblock Copolymers as Nanomaterial Building Blocks”  
*7th World Congress of Chemical Engineering*, Glasgow, United Kingdom, July 10-14, 2005.

49. A. Afratis, **M. Vamvakaki**, K. Chrissopoulou, S.H. Anastasiadis  
 “Hydrophilic organic/inorganic nanocomposites”  
*XXI Panhellenic Conference of Solid State Physics and Material Science*, Nicosia, Cyprus, August 2005.
50. **M. Vamvakaki**, S. H. Anastasiadis, T. K. Georgiou, C. S. Patrickios  
 “pH-responsive Polymer Hydrogels: Synthesis, Characterization and Metal Nanoparticle Formation”  
*International Symposium on Polymer Conetworks, Gels and Membranes*, Budapest, Hungary, September 2005.
51. S. H. Anastasiadis, **M. Vamvakaki**, D. Palioura, V. Katsamanis, T. Afchoudia, A. Spyros, M. Kostylev, L. Bronstein  
 “Micellization of pH-responsive block copolymers and the formation of metal nanocrystals”  
*Pacificchem 2005*, Honolulu, Hawaii, U.S.A., December 2005.
52. T. K. Georgiou, C. S. Patrickios, L. A. Phylactou, **M. Vamvakaki**, E. N. Yamasaki  
 “Cationic Hydrophilic Homo and Co-Polymer Stars: Synthesis, Characterization and Evaluation as Transfection Reagents”  
*231<sup>st</sup> ACS National Meeting*, Atlanta, USA, March 2006.
53. S. H. Anastasiadis, **M. Vamvakaki**, D. Palioura, A. Spyros  
 “The Formation of Metal Nanoparticles in pH-responsive Block Copolymers and Hydrogels”  
*IUPAC International Symposium on Advanced Polymers for Emerging Technologies, [PSK30]*, Bexco, Busan, KOREA, October 2006.
54. **M. Vamvakaki**  
 “Functional Polymeric Materials: Synthesis, Characterization and Applications”  
*6<sup>th</sup> Panhellenic Polymer Conference*, Patras, Greece, November 2006.
55. T. K. Georgiou, E. N. Yamasaki, L. A. Phylactou, **M. Vamvakaki**, C. S. Patrickios  
 “Synthetic Polymer Gene Delivery Vehicles: The Case of Polymethacrylate Stars”  
*6<sup>th</sup> Panhellenic Polymer Conference*, Patras, Greece, November 2006.
56. **M. Vamvakaki**, D. Palioura, S. P. Armes, S. H. Anastasiadis  
 “Metal Nanocrystals Incorporated within pH-Responsive Microgel Particles”  
*6<sup>th</sup> Panhellenic Polymer Conference*, Patras, Greece, November 2006.
57. **M. Vamvakaki**, D. Palioura, S. H. Anastasiadis, and S. P. Armes  
 “Metal nanocrystals incorporated within pH-responsive microgel particles”  
*General Meeting 07, American Physical Society*, Denver, CO, U.S.A, March 2007.
58. **M. Vamvakaki**, D. Palioura, S. P. Armes, S. H. Anastasiadis  
 “pH-responsive Polymer Microgel Particles: Matrices for Metal Nanocrystals”  
*232<sup>nd</sup> ACS National Meeting & Exposition*, Chicago, IL, USA, March 2007.
59. **M. Vamvakaki**  
 “Water-Compatible Functional Synthetic Polymers”  
*6<sup>th</sup> Panhellenic Chemical Engineering Conference*, Athens, Greece, May 2007.
60. E. Pavlopoulou, K. Karagianni, K. Chrissopoulou, **M. Vamvakaki**, S. H. Anastasiadis, M. Moschakou, H. Iatrou, S. Pispas, and N. Hadjichristidis  
 “Micellization of block copolymers”  
*6<sup>th</sup> Panhellenic Chemical Engineering Conference*, Athens, Greece, May 2007.
61. A. Ovsianikov, M. Farsari, **M. Vamvakaki**, B. N. Chichkov, C. Fotakis  
 “Towards the microstructuring of nonlinear and hybrid polymeric materials by two-photon polymerization”  
*SPIE Optics and Photonics*, San Diego, California, USA, 26 - 30 August 2007.

62. M. Farsari, **M. Vamvakaki**, C. Fotakis, Ovsianikov, B. N. Chichkov  
“3D nonlinear photonic crystals made by 2-photon polymerization”  
*COLA 2007, 9<sup>th</sup> International Conference on Laser Ablation*, Tenerife, Spain, September 2007.
63. D. S. Achilleos, **M. Vamvakaki (Best Poster Price)**  
“Synthesis of Polymer Brushes onto Inorganic Nanoparticles”  
*XXIII Panhellenic Conference of Solid State Physics and Material Science*, Athens, Greece, September 2007.
64. A. Mateescu, **M. Vamvakaki (Best Poster Price)**  
“Synthesis and Characterization of Stimuli Responsive Block Copolymer Brushes by Atom Transfer Radical Polymerization”  
*20<sup>th</sup> International Symposium on Polymer Analysis and Characterization*, Agios Nikolaos, Crete, Greece, October 2007.
65. D. S. Achilleos, **M. Vamvakaki**  
“Polymer-Functionalized TiO<sub>2</sub> and ZnO nanoparticles by Atom Transfer Radical Polymerization”  
*20<sup>th</sup> International Symposium on Polymer Analysis and Characterization*, Agios Nikolaos, Crete, Greece, October 2007.
66. A. Mateescu, D. S. Achilleos, **M. Vamvakaki**  
“Synthesis and Characterization of stimuli-responsive polymer brushes on flat and curved surfaces by ATRP”  
*Controlled/Living Polymerization: From synthesis to applications, CLP-07*, Antalya, Turkey, October 2007.
67. M. Farsari, A. Ovsianikov, **M. Vamvakaki**, B.N. Chichkov, C. Fotakis  
“Three-dimensional photonic crystals containing a nonlinear optical chromophore”  
*3<sup>rd</sup> International Conference on Micro-Nanoelectronics, Nanotechnology & MEMs, Micro&Nano 2007*, Athens, Greece, November 2007.
68. D. S. Achilleos and **M. Vamvakaki**  
“Surface-Initiated Atom Transfer Radical Polymerization from TiO<sub>2</sub> and ZnO nanoparticles”  
*Nanoparticles 2008: Synthesis, Properties and Applications of Nanoparticles*, Bradford, UK, February 2008.
69. I. Sakellari, C. Reinhardt, A. Giakoumaki, **M. Vamvakaki**, D. Gray, M. Farsari, B. N. Chichkov, and C. Fotakis  
“Recent advances in the structuring of novel sol-gel composites by two-photon polymerization”  
*E-MRS 2008 Spring Meeting, Symposium B*, Strasbourg, France, May 2008.
70. D. S. Achilleos and **M. Vamvakaki (Best Poster Price)**  
“Synthesis of end-grafted polymer chains from inorganic nanoparticles”  
*International Fine Particle Research Institute, Annual General Meeting*, Hersonissos, Crete, Greece, June 2008.
71. Michael Gradzielski, **Maria Vamvakaki**, Demetris Kafouris, Costas S. Partickios, Peter Lindner  
“The Structure of Amphiphilic Networks Based on Cross-linked Star Polymers: Microphase Separation Evidenced by SANS”  
*19<sup>th</sup> Polymer Networks Group Meeting, Polymer Networks: Chemistry, Physics, Biology and Applications*, Larnaca, Cyprus, June 2008.
72. K. E. Christodoulakis, **M. Vamvakaki**  
“pH-Responsive microgel particles”  
*1st Chemistry Graduate Student Meeting*, Greece-Cyprus, Polis Chrisohous, Cyprus, July 2008.
73. D.S. Achilleos, **M. Vamvakaki**  
“Synthesis, Characterization and Optical Properties of Polymer Modified Inorganic Nanoparticles”  
*XXIV Panhellenic Conference on Solid State Physics and Materials Science*, Heraklion, Crete, September 2008.

74. K. E. Christodoulakis, **M. Vamvakaki**  
 “pH-Responsive Microgel Particles”  
*XXIV Panhellenic Conference on Solid State Physics and Materials Science*, Heraklion, Crete, September 2008.
75. V. Katsamanis, **M. Vamvakaki**, S.H. Anastasiadis  
 “Synthesis and Characterization of Metal Nanoparticles Embedded in Block Copolymer Micelles”  
*XXIV Panhellenic Conference on Solid State Physics and Materials Science*, Heraklion, Crete, September 2008.
76. F. K. Krasanakis, K. Chrissopoulou, **M. Vamvakaki**  
 “Synthesis, Characterization and Properties of Polystyrene / Layered Silicate Nanocomposites”  
*XXIV Panhellenic Conference on Solid State Physics and Materials Science*, Heraklion, Crete, September 2008.
77. I. Sakellari, A. Giakoumaki, C. Reinhardt, A. Ovsianikov, **M. Vamvakaki**, D. Gray, B.N. Chichkov, M. Farsari, C. Fotakis  
 “Three-dimensional photonic crystal structures made by 2-photon polymerization”  
*XXIV Panhellenic Conference on Solid State Physics and Materials Science*, Heraklion, Crete, September 2008.
78. C. Reinhardt, A. Gaidukeviciute, N. Gaikoumaki, R. Kiyon, C. Ohrt, S. Passinger, A. Seidel, M. Farsari, **M. Vamvakaki**, B.N. Chichkov  
 “Linear and nonlinear dielectrically loaded waveguides for guiding of surface plasmon polaritons”  
*XXIV Panhellenic Conference on Solid State Physics and Materials Science*, Heraklion, Crete, September 2008.
79. M. Farsari, C. Reinhardt, I. Sakellari, A. Giakoumaki, A. Ovsianikov, **M. Vamvakaki**, D. Gray, B.N. Chichkov, C. Fotakis  
 “Three-dimensional direct writing of novel sol-gel composites for photonics applications”  
*XXIV Panhellenic Conference on Solid State Physics and Materials Science*, Heraklion, Crete, September 2008.
80. **M. Vamvakaki**  
 “Responsive Microgel Particles”  
*7th Hellenic Polymer Conference*, Ioannina, September 2008.
81. E. Pavlopoulou, V. Katsamanis, K. Christodoulakis, G. Portale, W. Bras, **M. Vamvakaki**, S. H. Anastasiadis  
 “Impregnation of pH-Responsive Polymeric Matrices with Metal Nanoparticles”  
*7th Hellenic Polymer Conference*, Ioannina, September 2008.
82. K. Christodoulakis, **M. Vamvakaki**  
 “Colloidal Microgel Particles Carrying Acidic or Basic Moieties”  
*7th Hellenic Polymer Conference*, Ioannina, September 2008.
83. D.S. Achilleos, D. Moatsou, **M. Vamvakaki**  
 “End Grafted Polymer Chains onto Inorganic Nanoparticles”  
*7th Hellenic Polymer Conference*, Ioannina, September 2008.
84. A. Mateescu, **M. Vamvakaki**  
 “Responsive Polymer Brushes on Flat Surfaces by Surface – Initiated Polymerization”  
*7th Hellenic Polymer Conference*, Ioannina, September 2008.
85. A. Ranella, S. Psycharakis, V. Melissanaki, A. Giakoumaki, **M. Vamvakaki**, A. Tosca, S. Kruger-Krasagakis, M. Farsari, C. Fotakis  
 “3-Dimensional scaffolds for tissue engineering”  
*1<sup>st</sup> Panhellenic Conference of research dermatology*, Heraklion, Crete, October 2008.
86. D. S. Achilleos, D. Moatsou and **M. Vamvakaki**



“Synthesis and characterization of polymer-functionalized inorganic nanoparticles”  
*Synthesis and surface modification of nanocolloids*, Baiona, Spain, February 2009.

87. S.H. Anastasiadis, V. Zorba, E. Stratakis, M. Barberoglou, E. Spanakis, P. Tzanetakos, C. Fotakis, A. Mateescu, **M. Vamvakaki**  
 “Biomimetic and responsive artificial surfaces that quantitatively reproduce the water repellency of a Lotus leaf”  
*General Meeting 09, American Physical Society*, Pittsburgh, Pennsylvania, U.S.A., March 2009.
88. S.H. Anastasiadis, E. Stratakis, V. Zorba, M. Barberoglou, E. Spanakis, P. Tzanetakos, C. Fotakis, A. Mateescu, **M. Vamvakaki**  
 “Biomimetic, water repellent artificial surfaces”  
*7<sup>th</sup> Panhellenic Chemical Engineering Conference*, Patras, Greece, June 2009.
89. D. S. Achilleos, D. Moatsou and **M. Vamvakaki**  
 “Synthesis of Polymer-functionalised SiO<sub>2</sub> Nanoparticles by Surface-initiated Atom Transfer Radical Polymerization”  
*Frontiers in Polymer Science*, Mainz, Germany, June 2009.
90. K. E. Christodoulakis and **M. Vamvakaki**  
 “pH-responsive Homopolymer and Polyampholyte Microgel Particles”  
*Frontiers in Polymer Science*, Mainz, Germany, June 2009.
91. E. Stratakis, M. Barberoglou, A. Pagkozidis, V. Zorba, A. Mateescu, D. S. Achilleos, **M. Vamvakaki**, S. H. Anastasiadis and C. Fotakis  
 “Multifunctional and responsive surfaces based on fs laser micro/nano structuring of Silicon”  
*CLEO/IQEC 09*, Baltimore, Maryland, U.S.A., May–June 2009.
92. A. Ovsianikov, B. Bhuiyan, M. Oubaha, B. D. MacCraith, M. Farsari, **M. Vamvakaki**, C. Fotakis, and B.N. Chichkov  
 “3D Microstructuring of Hybrid Photosensitive Materials by Two-Photon Polymerization Technique for Applications in Photonics”  
*CLEO/IQEC 09*, Baltimore, Maryland, U.S.A., May–June 2009.
93. A. Gaidukeviciute, C. Reinhardt, K. Terzaki, V. Melissinaki, A. Giakoumaki, **M. Vamvakaki**, C. Fotakis, B. N. Chichkov and M. Farsari  
 “Fabrication of nonlinear and metallic nanostructures for plasmonic applications and metamaterials”  
*4<sup>th</sup> International Conference on Surface Plasmon Photonics*, Amsterdam, Netherlands, June 2009.
94. A. Mateescu, J. Ye, R. Narain and **M. Vamvakaki**  
 “Novel Glycosurfaces by Surface-Initiated ATRP”  
*ICMAT 2009*, Singapore, June-July 2009.
95. K. Terzaki, A. Gaidukeviciute, C. Reinhardt, A. Giakoumaki, C. Fotakis, B. N. Chichkov, M. Farsari and **M. Vamvakaki**  
 “Hybrid and metallic nanostructures fabricated by direct laser writing”  
*ICMAT 2009*, Singapore, June-July 2009.
96. A. Mateescu, J. Ye, R. Narain and **M. Vamvakaki**  
 “Synthesis and characterization of glycopolymer brushes by surface-initiated ATRP”  
*42<sup>nd</sup> IUPAC Congress, Symposium: Soft Matter*, Glasgow, UK, August 2009.
97. E. Pavlopoulou, G. Portale, V. Katsamanis, K. Christodoulakis, **M. Vamvakaki** and S. H. Anastasiadis  
 “A SAXS Characterization of Complex Nanohybrid Systems: Metal Nanoparticle Incorporation within pH-Responsive Polymers”  
*Synchrotron Radiation in Polymer Science (SRPS 4)*, Rolduc Abbey, Kerkrade, Netherlands, September 2009.
98. E. Pavlopoulou, G. Portale, V. Katsamanis, K. Christodoulakis, **M. Vamvakaki** and S. H. Anastasiadis

“Following the Synthesis of Metal Nanoparticles within pH-Responsive Micelles and Microgels by SAXS”

*XXV Panhellenic Conference on Solid State Physics and Materials Science*, Thessaloniki, Greece, September 2009.

99. S. H. Anastasiadis, E. Pavlopoulou, **M. Vamvakaki**, K. Christodoulakis G. Portale and W. Bras  
“A SAXS study of the impregnation of pH-responsive polymeric microgels with metal nanoparticles”  
*General Meeting 10, American Physical Society*, Portland, Oregon, U.S.A., March 2010.
100. A. Gaidukeviciute, C. Reinhardt, K. Terzaki, V. Melissinaki, A. Giakoumaki, **M. Vamvakaki**, M. Farsari, B. N. Chichkov, C. Fotakis  
“Fabrication of dielectrically-loaded surface plasmon polariton waveguide (DLSPPW) components using linear and nonlinear hybrid sol-gel materials”  
*SPIE Photonics Europe*, Brussels, Belgium, April 2010.
101. Ioanna Sakellari, A. Gaidukeviciute, **M. Vamvakaki**, David Gray, C. Fotakis, M. Farsari  
“3D photonic nanostructures fabricated using direct laser writing”  
*SPIE Photonics Europe*, Brussels, Belgium, April 2010.
102. M. Farsari, **M. Vamvakaki**, BMM group, IESL-FORTH (“**2<sup>nd</sup> Best Innovation by an Individual Researcher**” Award)  
“Photosensitive materials for two-photon polymerization”  
*4th edition of the Photonics Innovation Village, SPIE Photonics Europe*, Brussels, Belgium, April 2010.
103. M. Bellec, D. Papazoglou, M. Kaliva, **M. Vamvakaki**, S. Tzortzakis  
“Femtosecond laser patterning of linear and nonlinear optical properties in transparent media”  
*3rd International Symposium on Filamentation “COFIL 2010”*, Crete, Greece, May-June 2010.
104. T. K. Georgiou, M. A. Ward, P. Knight, M. D. Rikkou, **M. Vamvakaki**, E. N. Yamasaki, L. A. Phylactou, C. S. Patrickios  
“Cationic Star Homo- and Co-polymers for Gene Delivery”  
*3rd International Symposium “Cellular Delivery of Therapeutic Macromolecules”*, Cardiff, UK, June 2010, *Drug Discovery Today* 2010, 15 (23/24), 1104.
105. L. Nikoshvili, V. Matveeva, E. Sulman, S. Anastasiadis, **M. Vamvakaki**, I. Tsvetkova, L. Bronstein  
“Surface characteristics of polymer solutions as one of the aspects to understanding the polymer-containing catalyst synthesis and behaviour”  
*XIV International Conference on Surface Forces, Moscow to St. Petersburg, Russia, June, 2010*.
106. H. S. Ginis, I. Pentari, A. Pennos, **M. Vamvakaki**, I. Pallikaris  
“Post implantation adjustable Intracorneal elements”  
*10<sup>th</sup> Aegean Cornea Meeting*, Crete, Greece, July 2010.
107. A. Mateescu, J. Ye, R. Narain and **M. Vamvakaki**  
“Synthesis and Characterization of Novel Glycosurfaces by ATRP”  
*MACRO 2010: 43rd IUPAC World Polymer Congress*, Glasgow, UK, July 2010.
108. K. E. Christodoulakis and **M. Vamvakaki**  
“Amphoteric Core-Shell Microgels: Contraphilic Two Compartment Colloidal Particles”  
*MACRO 2010: 43rd IUPAC World Polymer Congress*, Glasgow, UK, July 2010.
109. A. Mateescu, J. Ye, R. Narain and **M. Vamvakaki**  
“Novel Glycosurfaces by surface-initiated ATRP”  
*240<sup>th</sup> ACS National Meeting*, Boston, MA, USA, August 2010.
110. S. H. Anastasiadis, E. Stratakis, M. Barberoglou, V. Zorba, A. Mateescu, D. S. Achilleos, **M. Vamvakaki**, C. Fotakis  
“From superhydrophobicity and water repellence to superhydrophilicity: Smart polymer-functionalized surfaces”  
*240<sup>th</sup> ACS National Meeting & Exposition*, Boston, MA, August 2010.

111. K. E. Christodoulakis and **M. Vamvakaki**  
 “Contraphilic Core-Shell Microgel Particles”  
*20<sup>th</sup> Polymer Networks Group Meeting*, Goslar, Germany, August-September 2010.
112. E. Kambouraki, M. Farsari, **M. Vamvakaki**, C. Fotakis  
 “Functional Hybrid Materials for Two Photon Fabrication of Semiconducting 3D Structures”  
 PI-51, *H-POL8, 8<sup>th</sup> Hellenic Polymer Society Symposium*, Hersonissos, Crete, Greece, October 2010.
113. G. Pasparakis, T. Manouras, A. Selimis, S. Psycharakis, A. Ranella, P. Argitis, **M. Vamvakaki**  
 “Photodegradable Polymers as Substrates for Post-Culture Cell Patterning”  
 PI-52, *H-POL8, 8<sup>th</sup> Hellenic Polymer Society Symposium*, Hersonissos, Crete, Greece, October 2010.
114. G. Pasparakis, K. Stoikos, **M. Vamvakaki**  
 “Synthesis and Characterization of Responsive Nanoparticles for Homogeneous Catalysis”  
 PI-53, *H-POL8, 8<sup>th</sup> Hellenic Polymer Society Symposium*, Hersonissos, Crete, Greece, October 2010.
115. D. Moatsou, D. S. Achilleos, **M. Vamvakaki**  
 “Bulk Homopolymerization of 2-(Dimethylamino)ethyl methacrylate via Atom Transfer Radical Polymerization”  
 PI-54, *H-POL8, 8<sup>th</sup> Hellenic Polymer Society Symposium*, Hersonissos, Crete, Greece, October 2010.
116. D. S. Achilleos, **M. Vamvakaki**  
 “Multiresponsive Spiropyran-Based Copolymers Synthesized by Atom Transfer Radical Polymerization”  
 PI-55, *H-POL8, 8<sup>th</sup> Hellenic Polymer Society Symposium*, Hersonissos, Crete, Greece, October 2010.
117. M. Kaliva, G. E. Zervaki, A. Coustolelos, **M. Vamvakaki**  
 “Polymer Porphirin Nanoassemblies with Incorporated Gold Nanoparticles”  
 PI-56, *H-POL8, 8<sup>th</sup> Hellenic Polymer Society Symposium*, Hersonissos, Crete, Greece, October 2010.  
**(Best Poster Award in Polymer Chemistry)**
118. A. Mateescu, E. Stratakis, M. Barberoglou, C. Fotakis, **M. Vamvakaki**, S. H. Anastasiadis  
 “Stimuli Responsive Polymer Brushes as Smart Coatings: From Superhydrophobic to Superhydrophilic Surfaces”  
 PII-74, *H-POL8, 8<sup>th</sup> Hellenic Polymer Society Symposium*, Hersonissos, Crete, Greece, October 2010.
119. A. Mateescu, J. Ye, R. Narain, **M. Vamvakaki**  
 “Synthesis and Characterization of Novel Glycosurfaces and their Interactions with Lectins and Cells”  
 PII-75 *H-POL8, 8<sup>th</sup> Hellenic Polymer Society Symposium*, Hersonissos, Crete, Greece, October 2010.
120. T. Manouras, G. Pasparakis, A. Selimis, S. Psycharakis, A. Ranella, **M. Vamvakaki**, P. Argitis  
 “Laser induced cell patterning using polyacetals as photodegradable substrates”  
*4th International Conference on Micro- Nanoelectronics, Nanotechnology and MEMS*, NCSR Demokritos, Athens, Greece, December 2010.
121. D. Achilleos, **M. Vamvakaki**  
 “Multiresponsive Copolymers: Synthesis by Atom Transfer Radical Polymerization and Solution Characterization”  
*241th ACS National Meeting*, Anaheim, CA, U.S.A., March 2011.
122. V. Melissinaki, A. Gill, I. Ortega, **M. Vamvakaki**, A. Ranella, C. Fotakis, F. Claeysens, M. Farsari  
 “Direct Laser Writing of Polylactide 3D Scaffolds for Neural Tissue Engineering Applications”  
*ICMAT 2011*, Singapore, June-July 2011.

#### **XIV. INVITED LECTURES AT UNIVERSITIES AND RESEARCH CENTERS**

1. “Novel Water-Soluble Block Copolymers: Synthesis, Characterization and Evaluation”

*Stanford University*, October 1998, CA, U.S.A.

2. “Water-Compatible, Polymeric Materials: Synthesis, Characterization and Applications”  
*Technical University of Crete*, April 2005, Chania, Crete, Greece.
3. “Responsive Polymeric Materials: Synthesis, Characterization and Applications”  
*Osmangazi University*, May 2006, Eskisehir Turkey.
4. “Synthesis Characterization and Applications of Functional Polymers”  
*National Hellenic Research Foundation (NHRF)*, November 2006, Athens, Greece.
5. “Functional Polymeric Materials: Synthesis, Characterization and Applications”  
*Rice University*, April 2007, Houston, Texas, USA.
6. “Responsive Polymeric Nanomaterials: Synthesis and Self-assembly Characteristics”  
*University of Patras*, February 2008, Patras, Greece.
7. “Responsive Polymeric Nanomaterials for the Functionalization of Nanoparticles”  
*Laser Zentrum Hannover e.V.*, June 2009, Hannover, Germany.
8. “Synthesis and Responsive Properties of Functional Polymeric Materials”  
*Forschungszentrum*, November 2009, Jülich, Germany.
9. “*Responsive Polymers as Advanced Nanomaterials*”  
*MIT*, August 2010, Boston, Massachusetts, USA.
10. “*Photo-sensitive Polymeric Materials*”  
*MIT*, June 2011, Boston, Massachusetts, USA.

## **XV. OTHER ACTIVITIES**

*External Examiner* on Ph.D. Committees:      University of Cyprus, Department of Chemistry  
University of Patras, Department of Chemical Engineering  
University of Crete, Department of Chemistry  
University of Crete, Department of Physics