

ARKAS MICHAEL

Curriculum Vitae

A. PERSONAL

Name: Arkas Michael
Date / Place of birth: 27 June 1970 / Athens, Filothei Municipality, Attica
Family Status: Divorced, two children
Nationality: Greek
Home address: Konitsis 5, 15237 Melissia, Attica, Greece
Work address: NCSR "Demokritos" Institute of Physical chemistry, Laboratory: Nanomaterials of Organised Supramolecular Structure.
Telephone: 210-8042556 (home), 210-650-3669 (work), 6972421716 (Cell phone).
Military Service: 1997-99, Greek Army service (air force, first class airman)
E-mail address: m.arkas@inn.demokritos.gr

B. STUDIES

1997 Ph.D., University of Athens, Chemistry Department, Industrial Chemistry Unit.
1992 Bachelor of Science, Ioannina University, Chemistry Department.
1988 Filothei Public High School. Filothei Attica.

C. WORKING EXPERIENCE

March 2017
Today Researcher NCSR "Demokritos" Institute of Nanoscience Nano Technology

March 2007-
March 2017 Permanent Special Scientific Personel NCSR "Demokritos" Institute of Physical Chemistry

May 2006-
Jul 2006 "Pharmathen" Pharmaceutical Company at the patents department.

Febr 2005 -
Febr 2007: Research Collaborator NCSR "Demokritos Institute of Physical Chemistry, 'Nanomaterials of Organised Supramolecular Structure' Laboratory

Oct. 2001-
Jan 2005: Research Collaborator, NCSR "Demokritos" Institute of Physical Chemistry, 'Nanomaterials of Organised Supramolecular Structure' Laboratory [participating in a program entitled '*Organic/Inorganic hybrid membranes based on novel molecular nanosponges for water purification (NANOSPONGE)*', director: Dr. C. M. Paleos].

Jan. 2000 -
June 2001: Research Collaborator, NCSR "Demokritos" Institute of Biology, Photosynthesis Laboratory [participating in a program entitled '*Regulating mechanism of stabilisation-destabilisation of the light harvesting complex LHCII of photosystem II. Relation of structure and his operation*', director: Dr I. Argyroudi-Akoyunoglou].

Jan - Dec.
1998 and
Jan. - June
2000: Research Collaborator, NCSR "Demokritos" Institute of Physical Chemistry, Laboratory of Environmental Pollution Control [participating in a program entitled '*Pollution of Saronikos Gulf from Petroleum products*', director: Dr. G. Kaniias].

Nov. 1997 -
June 1999: Chemical Laboratory of Eleusis Airbase and at the Spectroscopy Analysis of Lubricants Laboratory in Andravida Airbase (*while in military service*).

Nov. 1992 -
June 1997: Graduate student at the University of Athens, NCSR "Demokritos" Institute of Physical Chemistry, 'Nanomaterials of Organised Supramolecular Structure' Laboratory. Doctoral thesis entitled, '*Secondary Factors that contribute in the formation of thermotropic liquid crystals from amphiphilic quaternary ammonium salts*', under the supervision of Dr. C. M. Paleos.

Jan. - Sept.
1996: Research Collaborator, NCSR "Demokritos" Institute of Physical Chemistry, 'Nanomaterials of Organised Supramolecular Structure' Laboratory [participating in a program entitled '*Development of new modified polymers and mixtures for implementation as packing materials and in rural applications*' under the supervision of Dr C. M. Paleos.

Jan. 1991 – Student Collaborator, Ioannina University, Bioinorganic Chemistry Laboratory, under
June 1992: the supervision of professor Dr. Th. Kampanos.

D. SCHOLARSHIPS / AWARDS

April - June 1997: Empirikio Institution fellowship.

March 1993 - March 1997: NCSR "Demokritos" graduate student fellowship.

April - June 1996: Greco-French collaboration program of "Plato" between Institut de Physique et de Chimie de Materiaux, Strasburg France and Institute of Physical Chemistry NCSR "Demokritos.

E. TEACHING/SUPERVISING QUALIFICATIONS

2007-12 National and Kapodestrian University of Athens. Department of Chemistry. Section of Industrial Chemistry. "Polymerization in organized Media" Postgraduate course

Oct. 2001- National Technical University of Athens. School of Chemical Engineering. Department
Dec. 2004: of Materials Science and Engineering Cosupervision of diplomatic works:

Aphrodite Makri: Spectroscopic study of antihypertensive drugs.

Constantinos Papakostas: Spectroscopic study of copper complexes with molecules of biological interest.

Joan Sideri: Reaction of metal ions with EDTA.

Chris Stavropoulos :FT-IR Spectroscopic study of active cortisone containing drugs for dermatological use.

Lazarus Eleades: Synthesis of alkylated hyperbranched polymers and research of the effect of their structure in the removal of polycyclic aromatic hydrocarbons from water.

Spring 2001: University of Ioannina. Department Chemistry. Section of Inorganic Chemistry Laboratory course with demonstration of the Circular Voltametry under inert atmosphere technique.

F. OTHER QUALIFICATIONS

A. COMPUTER SKILLS: **Extensive** experience (39 years) in use of computers and Internet.(28 years) (all of the widely known software including Word, Excel, Power Point, Origin, Corel Draw, Frontpage, Acrobat, Illustrator and other software used in specialized applications such as molecular modelling and dynamics, crystallography, spectroscopy, CAD

B. FOREIGN LANGUAGES: English (excellent), French (excellent)

C OTHER: Significant experience in translations since I already have translated two books of Inorganic Chemistry and a plethora of patents. Experience in patent development.

G. – PUBLICATIONS

i Thesis

1. - M. Arkas, Secondary Factors that contribute in the formation of thermotropic liquid crystals from amphiphilic quaternary ammonium salts. Athens 1997.

ii. Publications in international scientific magazines

1.- G. Paul, T. Theophanides, M. Arkas, C. Paleos, J. Anastassopoulou, I. Marcotte, M. Bertrand Semi-Quantitative Information on Dimer Ion Formation in Lsims for Imitator Biomembrane Molecules. In: Merlin J.C., Turrell S., Huvenne J.P. (eds) Spectroscopy of Biological Molecules. pp. 389-390 1995 Springer, Dordrecht

- 2.- M. Arkas, K. Yannakopoulou, C. M. Paleos, A. Skoulios and P. Weber, The Mesomorphic Behaviour of Cyanopropyl Dimethyl Ammonium Bromides. *Liq. Cryst.*, 1995, Vol. 18 No 4, 563-569.
- 3.- C. M. Paleos, M. Arkas, R. Segrouchini and A. Skoulios, Smectic Mesophases from Quaternary Ammonium Salts Functionalized with Interacting Endgroups. *Mol. Cryst. Liq. Cryst.*, 1995, Vol. 268, pp. 179 - 182.
- 4.- G. J. C. Paul, J. Anastassopoulou, I. Marcotte, T. Theophanides, M. Arkas, C.M. Paleos and M. J. Bertrand, An Investigation of the Clustering Processes Occuring in Liquid Secondary Ion Mass Spectrometry for Alkyl Quaternary Ammonium Salts. *J. Mass Spectrom.*, 1996 Vol 31, pp 95 - 100.
- 5.- D. Tsiourvas, M. Arkas, C. M. Paleos, and A. Skoulios, Smectic Mesomorphism of Long Chain n-Alkylammonium Polyacrylates. *Pol. Prep.* 1997, Vol 38 pp 233-234.
- 6.- M. Arkas, C. Paleos, A. Skoulios, Crystal and Liquid Crystal Behaviour of N-Cyanoalkyl-N-alkyl-N,N-Dimethylammonium Bromides: Role of the Dipole Interactions of the Cyano Groups. *Liq. Cryst.* 1997 Vol 22, pp 735-742.
- 7.- C. M. Paleos, M. Arkas and A. Skoulios, Mesomorphic Character of Quaternary Ammonium Salts Affected by Secondary Hydrogen Bonding Interactions. *Mol. Cryst. Liq. Cryst.*, 1998, Vol. 309 pp. 237-250.
- 8.- M. Arkas, D. Tsiourvas, C. M. Paleos and A. Skoulios, Smectic Mesophases from Dihydroxy Derivatives of Quaternary Alkyl-ammonium Salts. *Chem. Eur. J.* 1999, Vol 5, No 11 pp 3202-3207.
- 9.- J. H. Georgakopoulos, A. Sokolenko, M. Arkas, G. Sofou, R.G. Hermmann and J. H. Argyroudi-Akoyunoglou, Proteolytic Activity Against LHC-II and D1 in Close Association to the Trimeric Form. Isolation of the Protease. *Biochim. Biophys. Acta-Bioenergetics* 2002, Vol 1556, No 1 pp 53-64.
- 10.- A. Nikokavoura, D. Tsiourvas, M. Arkas, Z. Sideratou and C. M. Paleos, Thermotropic liquid crystalline behaviour of piperazinium and homopiperazinium alkylsulphates. *Liq. Cryst.* 2002, Vol 29, No 12 pp 1547-1553.
- 11.- M. Arkas, D. Tsiourvas and C. M. Paleos, Functional Dendrimeric "nanosponges" for the removal of polycyclic aromatics hydrocarbons from water. *Chem. Mater.* 2003, Vol 15, No 14 pp 2844-2847.
- 12.- A. Nikokavoura, D. Tsiourvas, M. Arkas, Z. Sideratou and C. M. Paleos, Liquid Crystals Derived From Multi-Cationic Azamacrocyclic Alkylsulphates. *Liq. Cryst.* 2004, Vol 31, No 2 pp 207-213.
- 13.- M. Arkas, C. M. Paleos, L. Eleades and D. Tsiourvas, Alkylated Hyperbranched Polymers as molecular nanosponges for the Purification of Water from Polycyclic aromatic Hydrocarbons. *J. Appl. Polym. Sci.* 2005, Vol 97, No 6 pp. 2299-2305.
- 14.- M. Arkas, C. M. Paleos, and D. Tsiourvas, Organosilicon dendritic networks in porous ceramics for water purification *Chem. Mater.* 2005, Vol 17, No 13, pp. 3439-3444.
- 15.- M. Arkas, R. Allabashi, D. Tsiourvas, E.-M. Mattausch, R. Perfler Organic/inorganic hybrid filters based on dendritic and cyclodextrin "nanosponges" for the removal of organic pollutants from water *Environ. Sci. Technol.* 2006, Vol 40 (8), pp. 2771-2777.
- 16.- R. Allabashi, M. Arkas, D. Tsiourvas, and Hörmann, G., Removal of some organic pollutants in water employing ceramic membranes impregnated with cross-linked silylated dendritic and cyclodextrin polymers, *Water Res.* 2007, Vol 41 (2), pp. 476-486.
- 17.- A. Tsetsekou, M. Arkas, A. Kritikaki, S. Simonetis and D. Tsiourvas, Optimization of hybrid hyperbranched polymer/ceramic filters for the efficient absorption of polyaromatic hydrocarbons from water *J. Membrane Sci.* 2008, Vol 311 (1-2), pp. 128-135.
- 18.- M. Arkas and D. Tsiourvas Organic/inorganic hybrid nanospheres based on hyperbranched poly(ethylene imine) encapsulated into silica for the sorption of toxic metal ions and polycyclic aromatic hydrocarbons from water *J. Hazard. Mater.* 2009 Vol 170 (1), pp. 35-42.
- 19.- M. Arkas, D. Tsiourvas, C.M.Paleos Functional dendritic polymers for the development of hybrid materials for water purification *Macromolecular Materials and Engineering* 2010 Vol 295 (10), pp. 883-898.
- 20.- D. Tsiourvas, A. Tsetsekou, M. Arkas, S. Diplas, E. Mastrogianni, Covalent attachment of a bioactive hyperbranched polymeric layer to titanium surface for the biomimetic growth of calcium phosphates *Journal of Materials Science: Materials in Medicine* 2011 Vol 22 (1), pp. 85-96.
- 21.- M. Arkas, Hybrid Organic/Inorganic Materials Based on Functionalized Dendritic Polymers: Methods of Preparation, Applications and Future Prospects *J. Material Sci. Eng.* 2012, 1:3 pp. 1-2.
- 22.- D. Tsiourvas, M. Arkas, Columnar and smectic self-assembly deriving from non ionic amphiphilic hyperbranched polyethylene imine polymers and induced by hydrogen bonding and segregation into polar and non polar parts *Polymer (United Kingdom)* 2013 Vol 54 (3), pp. 1114-1122.
- 23.- D. Tsiourvas, A. Tsetsekou, A. Papavasiliou, M. Arkas, N. Boukos, A novel hybrid sol-gel method for the synthesis of highly porous silica employing hyperbranched poly(ethyleneimine) as a reactive template *Microporous and Mesoporous Materials* 2013 Vol 175, pp. 59-66.

- 24.- D. Tsiourvas, M. Arkas, C.M. Paleos Organic/Inorganic Hybrid Materials Based on Functional Dendrimers and Hyperbranched Polymers for Water Purification. (Ed. Kostas Demadis) Chapter 13 pp 333-356 in the book *Water Treatment Processes 2013* Nova Science Publishers. New York.
- 25.- M. Arkas Hybrid organoceramics deriving from dendritic polymers, methods of preparation, optimization techniques and prospected applications (Ed. Joan Josep Roa Rovira) Chapter 1 pp. 1-30 in the book *Recent Advances in Ceramic Materials Research 2013* Nova Science Publishers. New York.
26. - M. Arkas, A. Papavasiliou, Effects of Hydrogen-bonding on the liquid crystalline properties of dendritic polymers, (Ed. Vijay Kumar Thakur) Chapter 6 in *Liquid Crystalline Polymers: Structure and Chemistry*. 2015 Springer.
- 27.- F Petrakli, M Arkas, A Tsetsekou, α -Alumina nanospheres from nano-dispersed boehmite synthesized by a wet chemical route *Journal of the American Ceramic Society* 2018, 101 (8), 3508-3519.
- 28.- M Arkas, I Kitsou, F Petrakli Mimicking the behaviour of rigid rod molecules. Smectic H liquid crystals from amphiphilic quaternary ammonium salts *Liquid Crystals* 2018, 45 (1), 70-83.
- 29.- M Arkas, G Kithreoti, N Boukos, I Kitsou, F Petrakli, K Panagiotaki Two completely different biomimetic reactions mediated by the same matrix producing inorganic/organic/inorganic hybrid nanoparticles *Nano-Structures & Nano-Objects* 2018, 14, 138-148.
- 30.- I Kitsou, P Panagopoulos, T Maggos, M Arkas, A Tsetsekou Development of SiO₂@ TiO₂ core-shell nanospheres for catalytic applications *Applied Surface Science* 2018, 441, 223-231.
31. – M Arkas, K. Panagiotaki, I. Kitsou, F Petrakli, F. Dendritic Polymer—Enhanced Ultrafiltration. In *Nanoscale Materials in Water Purification 2019*, Chapter 5, 111-152. Elsevier.
32. – M Arkas, I Kitsou, A Gkouma, M Papageorgiou The role of hydrogen bonds in the mesomorphic behaviour of supramolecular assemblies organized in dendritic architectures *Liquid Crystals Reviews* 2019, 7 (1), 60-105.
33. - I Kitsou, M Arkas, A Tsetsekou Synthesis and characterization of ceria-coated silica nanospheres: their application in heterogeneous catalysis of organic pollutants *SN Applied Sciences* 2019, 1 (12), 1557.
34. – M Douloudi, E Nikoli, T. Katsika, M. Vardavoulias, M Arkas, Dendritic Polymers as Promising Additives for the Manufacturing of Hybrid Organoceramic Nanocomposites with Ameliorated Properties Suitable for an Extensive Diversity of Applications. *Nanomaterials* 2021, 11 (1), 19. <https://doi.org/10.3390/nano11010019>.
35. - M Vardavoulias, P Gkomoza, M Arkas, D K Niakolas, S G Neophytides, Thermal Spray Multilayer Ceramic Structures with Potential for Solid Oxide Cell Applications. *Coatings* 2021, 11, 682. <https://doi.org/10.3390/coatings11060682>.

– ATTENDED CONFERENCES

- 1.- Mesomorphic Behaviour of Quaternary Ammonium Salts Functionalized with a Cyano Group. By M. Arkas, C. M. Paleos, A. Skoulios and P. Weber. 11th International Conference on the Chemistry of the Organic Solid State” Jerusalem Israel. July 5-9 (1993).
- 2.- Substituent Effects on Adduct Formation in Fast Atom Bombardment Mass Spectrometry (FABMS) and Liquid-assisted Secondary Ion Mass Spectrometry (LSIMS) for a series of Amphiphilic Quaternary Ammonium Salts, G. J. Paul, J. Anastassopoulou, T. Theophanides, I. Marcotte, M. J. Bertrand, M. Arkas and C. M. Paleos. Joint Greek - Italian Meeting on Chemistry of Biological Systems and Molecular Chemical Engineering, Ioannina, Greece, December 18-21, (1994).
- 3.- An Investigation of Cluster Ion Formation in Liquid - Assisted Secondary Ion Mass Spectrometry (LSIMS) for a Series of Quaternary Ammonium Salts, G.J.C. Paul, J. Anastassopoulou, I. Marcotte, M.J. Bertrand, M. Arkas and C.M. Paleos. 43rd ASMS Conference on Mass Spectrometry and Allied Topics, Atlanta, USA, May 21 -26, 1995.
- 4.- Semi-Quantitative Information on Dimer Ion Formation in LSIMS for Imitator Biomembrane Molecules, G.J.C. Paul, T. Theophanides, M. Arkas, C. Paleos, I. Marcotte, J. Anastassopoulou, M.J. Bertrand. 6th European Conference on the Spectroscopy of Biological Molecules, Lille, France, 1995.
- 5.- Liquid Crystals Deriving from Amphiphilic Quaternary Ammonium Salts Modified by Functional Groups, M. Arkas, C.M. Paleos, and A. Skoulios. 16th Panhellenic Chemistry Conference, Athens Greece, 4-8 December 1995.
- 6.- Smectic Mesophases From Dihydroxy Derivatives of Alkylammonium Quaternary Salt, M. Arkas, D. Tsiourvas, C.M. Paleos,. European Conference on Liquid Crystals, Hersonissos-Crete, Greece, 25-30 April 1999.
- 7.- Thelacoid bound protease: a component of the photosystem II super complex? J. H. Georgakopoulos, M. Arkas, G. Sofou, and J. H. Argyroudi-Akoyunoglou. 52th Meeting of the Hellenic Society of Biochemistry and Molecular Biology, Thessaloniki Greece 2000.

- 8.- Thermotropic Liquid Crystalline Behavior of Piperazinium and Homopiperazinium Alkylsulfates, A. Nikokavoura, D. Tsiourvas, M. Arkas, Z. Sideratou and C. M. Paleos. 19th International Liquid Crystals Conference, Edinburgh, UK, June 2002.
9. - Modification of titanium surface by reaction with hydroxyapatite / biopolymer layer for enhanced bioactivity”. E. Mastrogianni, A. Tsetsekou, M. Arkas D. Tsiourvas, Proceedings of the 5th Panhellenic Conference of the Greek Ceramic Society, Athens, October 22-23 2009.
- 10.- Synthesis of highly porous silica with a novel hybrid sol-gel method using dendritic polymers as templates A. Papavasiliou, A. Tsetsekou, M. Arkas and D. Tsiourvas 12th International Conference of the European Ceramic Society, Stockholm, Sweden, 19-23 June 2011.
11. - Development of hybrid organic/inorganic alumina nanoparticles based on functional dendritic polymers, Workshop on “Development of High-Performance Alumina Matrix Nanostructured Composites D. Tsiourvas, Z. Sideratou, M. Arkas, November 27, 2015, National Technical University of Athens, Greece.
- 12.- Double biomimetic synthesis of hybrid antimicrobial nanospheres, active ingredient carriers for coating of orthopedical implants. M. Papageorgiou, A. Tsetsekou, I. Kitsou, P. Gkomoza, M. Vardavoulis, M. Arkas. 11th Panhellenic Scientific Conference of Biomaterials, Greece, Athens, 23-25 November (2018).
- 13.-Development of hybrid nanospheres of silica – hyperbranched poly (ethylene imine) - silver for catalytic applications. M. Papageorgiou, M. Douloudi, A. Tsetsekou, I. Kitsou, M. Arkas. 12th Panhellenic Scientific Conference on Chemical Engineering, Greece, Athens, 29-31 May (2019).
- 14.-Synthesis of hybrid nanospheres, and silica gel as carriers of active pharmaceutical ingredients. M. Papageorgiou, M. Douloudi, A. Tsetsekou, I. Kitsou, M. Vardavoulis, M. Arkas. 12th Panhellenic Scientific Conference on Chemical Engineering, Greece, Athens, 29-31 May (2019).
- 15.-Synthesis and Characterization of HBPEI-Ag-Chitosan Hybrid Membranes: Their potential as gentamicin carriers. I. Kitsou, P. Gkomoza, M. Papageorgiou, M. Arkas, M. Vardavoulis, A. Tsetsekou. 12th Panhellenic Scientific Conference on Chemical Engineering, Greece, Athens, 29-31 May (2019).
- 16.- Insights into hybrid orthosilicic acid/hyperbranched polyethylene/silver nanoparticle formation and gelation mechanisms E. Nikoli, M. Douloudi A. Fotopoulou R. Panagiotopoulos M. Arkas. Conference of the European Colloid & Interface Society · Athens - Greece · 5-10 September 2021
- 17.- A rare monoclinic mesophase organization T. Katsika, M. Douloudi, M. Arkas Proceedings of the 10th International Conference of the Hellenic Crystallographic Association (HeCrA), NCSR “Demokritos”, Athens, Greece, 15-17 October 2021.
- 18.- Xerogel Coatings to bone implants prevent development of biofilm formation and severe osteomyelitis M. Douloudi, E. Nikoli, M. Papageorgiou, M. Arkas, P. Gomoza, M. Vardavoulis, I. Kitsou, A. Tsetsekou, Y. López, S. Soto, A. Blirup-Plum, B. Aalbæk, H. E. Jensen, L. K. Jensen Athens Conference on Advances on Chemistry 10-14 March 2021.

I- PATENTS

- 1.- C. M. Paleos, D. Tsiourvas, M. Arkas, Z. Sideratou, Modified Lipophilic Polymers for the Purification of Water GR Application Number: 20030100020, 21/1/2003. GR 1.004,458, 19-2-2004.
 - 2.- C. M. Paleos, D. Tsiourvas, Z. Sideratou, M. Arkas, Modified Lipophilic Polymers for the Purification of Water (Polymeres Lipophiles Modifies Destines a la Purification de l' Eau”, International Application Number: PCT/GR2004/000004. Publication number: WO2004065459, Publication date: 5-8-2004.
- CHINA**
 Filing Number: 200480002525.3
 Filing Date: 21/07/2005
 Publication Number: CN 1742038 A
 Publication Date: 010/3/2006
 Chinese Grant No.: ZL 2004 8 0002525.3
 Date of Grant: 06/10/2010 CANADA
 Serial No.: 2513612
 Filing Date: 21/01/2004
- 3.- C. M. Paleos, D. Tsiourvas, Z. Sideratou, A. Arkas Modified lipophilic polymers for the purification of water Modifizierte Lipophile Polymere Zur Wasserreinigung Application No: 04703855.9 Publication No: EP1594913 2005
 - 4.- C. M. Paleos, D. Tsiourvas, Z. Sideratou, A. Arkas Modified lipophilic polymers for the purification of water United States Patent and Trademark Office Pre-Granted Publication Patent No.: US20060157418 2006

- 5.- C. M. Paleos, D. Tsiourvas, Z. Sideratou, A. Arkas Method for encapsulating pollutants from water using modified dendrimeric polymers United States Patent and Trademark Office Granted Patent Filing Number: 10/542,665 Filing Date: 19/07/2005 Patent No.: US7,767,091 Date of Patent: 03/08/2010
- 6.- D Tsiourvas, M Arkas “ Use of Metal and Metalloid Oxides Produced by an Environmentally Friendly Process Practicable for the Cleaning of Water, Solvents or Fluids in General ”, GR Application Number 20190100585. 09/06/2008. GR Patent 1,006,559
- 7.- M Arkas, G. Kythreoti “ Biomimetic Preparation Of Hybrid Nanoparticles Composed of a Non-Organic Substrate, Metal Ions Absorbed in the Dendritic Polymers Cavity -Application of the same as Antibacterials and Catalysts” 8/12/2014. GR 20140100648
- 8.- M Vardavoulias, E. Gkomoza, A. Tsetsekou, I. Kitsou, M. Arkas, M Papageorgiou, S M Soto González, Y L Cubillos, V Cepas, H E Jensen, L K Jensen, S Lopez-Ibanez, I Gutierrez-del-Rio, C J Villar, F Lombó, F L Ortiz, M. J. I. Valdés-Solís Hydrogel And Xerogelactive Ingredient Carriers Made From Dendritic Polymers And Silica For Solid Substrate Coating Applications. GR Application Number 20190100585.
- 9.- M. Arkas, M. Vardavoulias, E. Nikoli Method for Chemical Compound Immobilisation onto solid surfaces employing thermal spraying of powders / heated particles and gel formation. Greek Patent eFiling Number 22-000381377818/11/2020.
- 10.- M. Arkas, E.Nikoli, M. Douloudi,G. Kythreoti, L. Arvanitopoulos K. Arvanitopoulos Hydrogel and xerogel active ingredient carriers made from dendritic polymers and silica for use as leather and textile additives. Greek Patent eFiling Number 22-0003846572 26/11/2020

J – RESEARCH BACKGROUND

My research activities so far can be summarized in the following thematic units:

1. Thermotropic Liquid Crystals

Secondary Factors that contribute in the formation of thermotropic liquid crystals and modify the organization of the liquid crystalline phases. Identification and study of new liquid crystalline phases with the help of X-ray diffraction.

2. Study of destabilization of light harvesting complex II

Interpretation of destabilization of light harvesting complex II in the spinach and in the *phaseolus vulgaris* and effort of isolation of the responsible protease.

3. Modified dendrimeric and hyperbranched polymers – applications in catalysis, antimicrobials and in the removal of organic pollutants from water.

Synthesis and characterization of functionalized dendrimeric and hyperbranched polymers, and evaluation of their potential in catalysis and in encapsulating various pollutants from water.

Thus far, working at a multifaceted and diversified academic and research environment, I became conversant in chemistry-biochemistry related fields, both in methodology and techniques; an indicative list follows:

Spectroscopy:	Spectroscopy of Atomic Emission, Nuclear Magnetic Resonance, Visible, Infra red and Ultra violet, Fluorimetry.
Thermal Analysis:	Differential Scanning Calorimetry, Dilatometry, Thermogravimetry.
Microscopy:	Optical Microscopy, Atomic Force Microscopy and Scanning Tunnelling Microscopy.
Biochemistry:	Electrophoresis, Western Blotting
Other:	Circular Voltametry, X-Ray Diffraction, Dynamic Light Scattering