



**5 PAGE-CURRICULUM VITAE AND 10-YEARS TRACK  
MARIA LOULUDI, Ph.D.**

**Contacts**

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Standard academic and research record

**ACCADEMIC BACKGROUND-EDUCATION**

**Diploma in Chemistry**, University of Ioannina, Ioannina, Greece, 1986

**Ph.D.**, Chemistry Department, University of Ioannina, Ioannina, Greece, 1992

**Post-doctoral** associate, University of Rene Descartes, CNRS, URA 400, Paris, France, 9/93-8/95 (E.U. Human Capital and Mobility Fellowship).

**Postdoctoral Fellow** Chemistry Department, University of Ioannina, Ioannina, Greece, 1996 (E.U. Return Grant).

**ACADEMIC APPOINTMENTS**

**2012- Full Professor** (*Inorganic Chemistry*), Dept. of Chemistry, University of Ioannina.

**2007-2012 Associate Professor** (*Inorganic Chemistry*), Dept. of Chemistry, University of Ioannina.

**2004-2007 Tenure Assistant Professor** (*Inorganic Chemistry*), Dept. of Chemistry, University of Ioannina.

**2001-2004 Assistant Professor** (*Inorganic Chemistry*), Dept. of Chemistry, University of Ioannina.

**1996-2001 Lecturer** (*Inorganic Chemistry*), Dept. of Chemistry, University of Ioannina.

**ACADEMIC ACTIVITY-10**

Supervisor of **13** PhD Theses, (9 accomplished, 4 in progress)

Supervisor of **26** MsSc. Theses, (24 accomplished, 2 in progress)

Supervisor of **62** Diploma theses, (61 accomplished, 1 in progress)

**FOREIGN STAYS-VISITS**

**2019 - NAU**-University, Biomass & Biochar Green Technology Center, Nanjing, China

**2010** -Institute of Physical Theoretical Chemistry Center of Magnetic Resonance Goethe-University Frankfurt.

**2009** - Frumkin Inst. of Physical Chemistry, Russian Academy of Sci. Moscow Russia.

**2007** - Dept. of Chemistry Lomonosof University, Moscow Russia.

**2003** -Section De Bioenergetique, Centre des Etudes Nucleaires, Saclay, France.

**1999** - Dept. of Chemistry University of Girona, Spain.

**1998** - Dept. of Chemistry University of Santiago de Compostela, Spain.

**RESEARCH INTERESTS AND ACTIVITY**

**FOUNDATION OF THE LAB *BIOMIMETIC CATALYSIS & HYBRID MATERIALS***

<http://catalysis.chem.uoi.gr>

- **Biomimetic Catalysis-Molecular Catalysis:** *Hydrocarbon oxidation:* Mn-complexes, Fe-complexes, Mn-, Fe-porphyrins, mechanistic studies. *Phenol-catechol oxidation:* Cu-complexes, mechanistic studies. *Catalytic decomposition of chlorophenols & dyes:* Fe-, Mn-porphyrins, mechanistic studies. *H<sub>2</sub>-production & CO<sub>2</sub> reduction:* Formic acid decomposition & production from CO<sub>2</sub> reduction by molecular catalysts, hybrid nanoparticles. *Inorganic Catalytic Technology.*
- **Hybrid organic-inorganic materials-Development of Composite Materials:** Chemical Surface Modification of Silica, Metal Oxides, Carbon-based Materials, Nano-Particles. Hybrid Materials. Sol-gel Materials. Heterogeneous Oxidation Catalysts. Heterogeneous catalysts for dehydrogenations & CO<sub>2</sub> reduction. Bio-active Hybrid Materials.
- **Chemical Biomimetics:** Metal Ions in Biological Systems, Models of Thiamine Enzymes, Cytochromes P-450, Models of Mn- and Fe-non-Heme Enzymes, Biomimetics of Cu-enzymes.

**ORGANISATION OF SCIENTIFIC CONFERENCES**

5. [Organiser]15<sup>th</sup> Panhellenic Symposium of Catalysis, Ioannina, Greece, October **2018**.
4. [Member of organising committee] 5<sup>th</sup> Panhellenic Symposium on Green Chemistry, Ioannina, Greece, October **2014**.
3. [Member of organising & Scientific committee] 17<sup>th</sup> IHSS Conference, Ioannina, Greece, 1-6 September **2014**.

2. [Member of organising committee] 2<sup>nd</sup> Panhellenic Conference on Thermal Analysis, Ioannina, Greece, 25-27 June **2004**.
1. [Secretary of organising committee and Scientific committee member] V<sup>th</sup> International Symposium on Applied Bioinorganic Chemistry Corfu, Greece, 13-17 April **1999**.

## FUNDED RESEARCH GRANTS

- Grant funded by **L'OREAL Paris** 'STUDY OF REDOX PROCESSES IN FIBROUS MATERIALS', (2020-2021) (coordinator).
- Grant funded by **L'OREAL Paris** 'STUDY OF ROS-INDUCED DAMAGE OF FIBERS', (2019-2020) (coordinator).
- Grant funded by **L'OREAL Paris** 'COLORATION & DECOLORATION OF HAIR FIBERS', (2018-2019) (coordinator).
- Grant funded by **L'OREAL Paris** 'STUDY OF RADICALS AND METAL CLUSTERS IN HAIR FIBERS', (2017-2018) (coordinator).
- Grant funded by **L'OREAL Paris** 'COLORED PARTICLES MADE BY FLAME SPRAY PYROLYSIS TECHNOLOGY', (2017-2018).
- Grant funded by **L'OREAL Paris** 'MELANIN STUDY: COLORATION & RADICALS MECHANISM', (2016-2017) (coordinator).
- Grant funded by **L'OREAL Paris** 'PRODUCTION OF COLORED PARTICLES BY FSP', (2016-2017).
- Grant funded by **L'OREAL Paris** 'CATALYTIC OXIDATION & DECOLORATION OF MELANIN', (2015-2016) (coordinator).
- **SYNERGASIA 2012-2015**. DEVELOPMENT OF PYROLYTIC MATERIALS FOR ENVIRONMENTAL AND CATALYTIC APPLICATIONS (co-coordinator).
- **THALIS 2012-2015**. DEVELOPMENT OF SYNTHETIC STRATEGIES, REACTIVITY AND APPLICATIONS IN MAGNETIC AND CATALYTIC MATERIALS (group leader).
- **THALIS 2012-2015**. DEVELOPMENT OF HYBRID MESO AND NANO POROUS MATERIALS FOR ENVIRONMENTAL AND CATALYTIC APPLICATIONS.
- Grant funded by **ALUMINION S.A. 2011-2012**. DEVELOPMENT OF LOW-T<sub>g</sub> GLASSES EXPLOITING RED MUD WASTES FOR HEAVY METAL REMEDIATION (coordinator).
- **IKY-DAAD (Greece-Germany) 2010-2012**. STUDIES OF ENVIRONMENTAL AND TECHNOLOGICAL MATERIALS WITH ADVANCED EPR SPECTROSCOPIES.
- **Bilateral Collaboration (Greece-Russia) 2005-2007**. Metallo-porphyrins on silica for hydrocarbon oxidation (coordinator).
- **NATO (Greece-Russia) 2007-2009**. NOVEL HYBRID CATALYTIC MATERIALS FOR DECOMPOSITION OF ORGANIC POLLUTANTS.
- **"PYTHAGORAS" II-EPEAEK (2004-2007)** «Bioactive and biomimetic materials via sol-gel method» (coordinator).
- **"PYTHAGORAS" I-EPEAEK (2004-2007)** «Development of novel hybrid materials for catalytic and environmental applications».
- **"HRAKLEITOS" I-EPEAEK (2002-2006)** DEVELOPMENT OF COMPOSITE BIOMIMETIC MATERIALS FOR CATALYTIC OXIDATION OF ORGANIC SUBSTRATES (coordinator)

## PATENT HOLDING

1. **M. Louloudi**, G. Armatas, Ph. Pomonis, N. Hadjiliadis, *COMPLEXES OF METAL IONS WITH IMIDAZOLE AND ITS DERIVATIVES GRAFTED ON SILICA SURFACE FOR CO ABSORPTION* (Greek Patent CODE Nr 1003613).
2. **M. Louloudi**, Y. Deligiannakis, P. Stathi, A. Hamalaki, K. Bourtzis, *HYBRID ANTI-BACTERIAL NANOMATERIAL (SI.GA.BAC.)* (Greek Patent CODE Nr 20130100459).
3. **M. Louloudi**, Y. Deligiannakis, I.K. Konstantinou, E. Mouzourakis, Y. Georgiou, "Recycled Tires' Pyrolytic Carbon Optimised for Arsenic Removal (AR.PY.CA)" (Greek Patent CODE Nr 20150100235).
4. I.K. Konstantinou, Y. Deligiannakis, **M. Louloudi**, A. Giannakas, M. Antonopoulou, V. Makrigianni, "Photocatalytic Regenerated Composite Wasted-Tire Pyrolytic Carbon-

**LIST OF (ISI) PUBLICATIONS**

**Citations>1800**

- 93.** M. Theodorakopoulos, M. Solakidou, Y.Deligiannakis, **M.Louloudi**, "A Use-Store-Reuse [USR] Concept in Catalytic HCOOH dehydrogenation: case-study of a Ru-based catalytic system for long-term USR under ambient O<sub>2</sub>" **Energies** 14 (2021) 481.
- 92.** A. Gemenetzi, P. Stathi, Y.Deligiannakis, **M.Louloudi**, "Study of the catalytic mechanism of a non-heme Fe catalyst: The role of the spin state of the iron" **Chem. Phys. Lett.** 764 (2021) 138282.
- 91.** P. Stathi, **M.Louloudi**, Y.Deligiannakis, "EPR monitoring of in-situ Catalytic Oxidative Assembly of Mn<sup>III</sup>-Mn<sup>IV</sup> Dimers via Monomeric Mn<sup>IV</sup>=O" **Chem. Phys. Lett.** 763 (2021) 138255.
- 90.** Y.Deligiannakis, V. Tsikourkitoudi, P. Stathi, K. Wegner, J. Papavasiliou, **M.Louloudi**, "PdO/Pd<sup>0</sup>/TiO<sub>2</sub> Nanocatalysts Engineered by Flame Spray Pyrolysis: Study of the Synergy of PdO/Pd<sup>0</sup> on H<sub>2</sub> Production by HCOOH Dehydrogenation and the Deactivation Mechanism" **Energ Fuels** 34 (2020) 15026.
- 89.** F. Fragou, C. Moularas, K. Adamska, Y. Deligiannakis, **M. Louloudi**, "[Nanocarbon@SiO<sub>2</sub>] Supported Mn-Catalysts with Enhanced Epoxidation Catalytic Activity: Scalable Engineering and Mechanisms" **ACS Appl. Nano Mater.** 3 (2020) 5583.
- 88.** Y. Georgiou, S. Rapti, A. Maurogiorgou, G. Armatas, M. J. Manos, **M.Louloudi**, Y.Deligiannakis, "A Hybrid {Silk@Zirconium MOF} Material as Highly Efficient As<sup>III</sup>-sponge" **Sci. Rep.** 10 (2020) 9358.
- 87.** M. Solakidou, M. Theodorakopoulos, Y.Deligiannakis, **M.Louloudi**, "Double-Ligand Fe, Ru Catalysts: a Novel Route for Enhanced H<sub>2</sub> Production from Formic Acid" **Int. J. Hydrogen Energy** 45 (2020) 17367.
- 86.** L. Pierri, A. Gemenetzi, A. Mavrogiorgou, J.B. Regitano, Y. Deligiannakis, **M. Louloudi**, "Biochar as supporting material for heterogeneous Mn(II) catalysts: efficient olefins epoxidation with H<sub>2</sub>O<sub>2</sub>" **Mol. Catal.** 489 (2020) 110946.
- 85.** P. Stathi, M. Solakidou, Y.Deligiannakis, **M.Louloudi**, "From Homogeneous to Heterogenized Molecular Catalysts for H<sub>2</sub> Production by Formic Acid Dehydrogenation: mechanistic aspects, role of additives & co-catalysts" **Energies** 13 (2020) 733.
- 84.** E. Bletsa, M. Solakidou, **M.Louloudi**, Y.Deligiannakis, "Ambient O<sub>2</sub> is a Switch between [1-electron/1-radical] vs. [2-electrons] Oxidative Catalytic Path of a Fe-Phtalocyanine catalyst" **Chem. Phys. Lett.** 743 (2020) 137180.
- 83.** M. Solakidou, A. Giannakas, Y. Georgiou, **M.Louloudi**, Y.Deligiannakis, "Efficient photocatalytic water-splitting performance by ternary CdS/Pt-N-TiO<sub>2</sub> and CdS/Pt-N,F-TiO<sub>2</sub>: interplay between CdS photo corrosion and TiO<sub>2</sub>-dopping" **Appl. Catal. B- Environ.** 254 (2019) 194.
- 82.** A. Simaioforidou, V. Costas, M.A. Karakassides, **M.Louloudi**, "Surface Chemical Modification of Macroporous and Mesoporous Carbon materials: Effect on their textural and catalytic properties" **Micropor. Mesopor. Mat.** 279 (2019) 334.
- 81.** M. Solakidou, Y.Deligiannakis, **M.Louloudi**, "NH<sub>2</sub>-based Heterogeneous Cocatalyst Boosts H<sub>2</sub>-Production from HCOOH by the Ru<sup>III</sup>/P(CH<sub>2</sub>CH<sub>2</sub>PPh<sub>2</sub>)<sub>3</sub> Catalyst" **Int. J. Hydrogen Energy** 43 (2018) 21386.
- 80.** A. Simaioforidou, Y. Georgiou, A. Bourlinos, **M. Louloudi**, "Molecular Mn-catalysts grafted on graphitic carbon nitride (gCN): the behavior of gCN as support matrix in oxidation reactions" **Polyhedron** 153 (2018) 41.

- 79.** A. Maurogiorgou, A. Simaioforidou, **M. Louloudi**, "Pyrolytic Carbon as Support Matrix for Heterogeneous Oxidation Catalysts: Influence of Pyrolytic Process on Catalytic Behaviour" *J. Environ. Chem. Eng.* 6 (2018) 1127.
- 78.** M. Papastergiou, Ag. Stamatis, A. Simaioforidou, **M. Louloudi**, "Bio-Inspired Mn-catalysts immobilized on silica surface: the influence of the ligand synthesis on catalytic behavior" *Catalysis Communications* 108 (2018) 33.
- 77.** K.C. Christoforidis, I. Vasiliadou, **M.Louloudi**, Y.Deligiannakis, "Gallic acid mediated oxidation of pentachlorophenol by the Fenton reaction under mild oxidative conditions" *J. Chem. Technol. Biotechnol.* 93 (2018) 1601.
- 76.** E. Mouzourakis, Y. Georgiou, **M. Louloudi**, I.K. Konstantinou, Y. Deligiannakis, "Recycled-Tire Pyrolytic Carbon Made Functional: a High-Arsenite (As<sup>III</sup>) Uptake, High Cost-Efficiency Material PyrC<sub>350</sub>" *J. Hazard. Mater.* 326 (2017) 177.
- 75.** A. Simaioforidou, E. Bletsas, Y.Deligiannakis, **M.Louloudi**, "Functionalised Graphene Oxides Stabilizing Cu<sup>+1</sup> Ions under Ambient O<sub>2</sub>" *Mater. Design* 116 (2017) 227.
- 74.** A. Simaioforidou, M. Papastergiou, A. Margellou, D. Petrakis, **M. Louloudi**, "Activated vs. Pyrolytic Carbon as Support Matrix for Chemical Functionalization: Efficient Heterogeneous non-Heme Mn(II) Catalysts for Alkene Oxidation with H<sub>2</sub>O<sub>2</sub>" *J. Mol. Catal. A* 426 (2017) 516.
- 73.** K.C. Christoforidis, D.A. Pantazis, L.L. Bonilla, **M.Louloudi**, Y.Deligiannakis, "Axial ligand effect on the catalytic activity of biomimetic Fe-porphyrin catalyst: An experimental and DFT study" *J. Catal.* 344 (2016) 768.
- 72.** P. Stathi, **M. Louloudi**, Y. Deligiannakis, "Efficient Low-Temperature H<sub>2</sub> Production from HCOOH/HCOO<sup>-</sup> by [Pd<sup>0</sup>@SiO<sub>2</sub>-Gallic-Acid] Nanohybrids: Catalysis and the Underlying Thermodynamics & Mechanism" *Energy Fuels* 30 (2016) 8613.
- 71.** M. Papastergiou, P. Stathi, E.R. Milaeva, Y.Deligiannakis, **M.Louloudi**, "Comparative Study of the Catalytic Thermodynamic Barriers for two Homologous Mn- and Fe-Non-Heme oxidation catalysts" *J. Catal.* 341 (2016) 104.
- 70.** E. Bletsas, M. Solakidou, **M.Louloudi**, Y.Deligiannakis, "Oxidative Catalytic Evolution of Redox- and Spin-States of a Fe-Phtalocyanine Studied by EPR" *Chem. Phys. Lett.* 649 (2016) 48.
- 69.** A. Maurogiorgou, M. Baikousi, V. Costas, E. Mouzourakis, Y. Deligiannakis, M.A. Karakassides, **M. Louloudi**, "Mn-Schiff base modified MCM-41, SBA-15 and CMK-3 NMs as Single-Site Heterogeneous catalysts: Alkene Epoxidation with H<sub>2</sub>O<sub>2</sub> incorporation" *J. Mol. Catal. A* 413 (2016) 40.
- 68.** K.C. Christoforidis, **M. Louloudi**, Y. Deligiannakis, "Effect of Humic Acid on Chemical Oxidation of Organic Pollutants by Iron(II) and H<sub>2</sub>O<sub>2</sub>: a dual mechanism" *J. Environ. Chem. Eng.* 3 (2015) 2991.
- 67.** E. Bletsas, P. Stathi, K. Dimos, **M. Louloudi**, Y. Deligiannakis, "Interfacial Hydrogen Atom Transfer by Nanohybrids based on Humic Acid Like Polycondensates" *J. Colloid Interf. Sci.* 455 (2015) 163.
- 66.** E. Seristatidou, A. Maurogiorgou, I.K. Konstantinou, **M. Louloudi**, Y. Deligiannakis, "Recycled Carbon (RC) Materials Made Functional: An Efficient Heterogeneous Mn-RC Catalyst" *J. Mol. Catal. A* 403 (2015) 84.
- 65.** P. Stathi, Y. Deligiannakis, G. Avgouropoulos, **M. Louloudi**, "Efficient H<sub>2</sub> Production from Formic Acid by a Supported Iron Catalyst on Silica." *Appl. Catal. A-Gen.* 498 (2015) 176.
- 64.** P. Stathi, Y. Deligiannakis, **M. Louloudi**, "Co-catalytic Enhancement of H<sub>2</sub> Production by Metal Oxide Nanoparticles." *Catal. Today* 242 (2015) 146.
- 63.** S. Lympeopoulou, M. Papastergiou, **M. Louloudi**, C. Raptopoulou, V. Psycharis, A.N. Georgopoulou, C. J. Milios, J. C. Plakatouras, "Synthesis, Characterization, Magnetic and

Catalytic properties of a novel Mn(II) Ladder Shaped Coordination Polymer." *Eur. J. Inorg. Chem.* (2014) 3638.

62. A. Maurogiorgou, M. Papastergiou, Y. Deligiannakis, **M. Louloudi**, "Activated Carbon Functionalised with Mn(II) Schiff base Complexes as Efficient Alkene Oxidation Catalysts: Solid Support Matters" *J. Mol. Catal. A* 393 (2014) 8.
61. G. Bilis, P. Stathi, A. Mavrogiorgou, Y. Deligiannakis, **M. Louloudi**, "Improved Robustness of Heterogeneous Fe-non-heme Oxidation Catalysts: a Catalytic and EPR study" *Appl. Catal. A-Gen.* 470 (2014) 376.
60. P. Stathi, G. Mitrikas, Y. Sanakis, **M. Louloudi**, Y. Deligiannakis, "Back-clocking of Fe<sup>2+</sup>/Fe<sup>1+</sup> Spin states in a H<sub>2</sub> Producing Catalyst by Advanced EPR" *Mol. Phys.* 111 (2013) 2942.
59. N. C. Anastasiadis, G. Bilis, J. C. Plakatouras, C. P. Raptopoulou, V. Psycharis, C. Beavers, S. J. Teat, **M. Louloudi**, S. P. Perlepes, "Iron(III) chloride – benzotriazole adducts with trigonal bipyramidal geometry: Spectroscopic, structural and catalytic studies" *Polyhedron* 64 (2013) 189.
58. M. Baikousi, Ag. Stamatis, **M. Louloudi**, M.A. Karakassides, "Thiamine pyrophosphate intercalation in layered double hydroxides (LDH): an active bio-hybrid catalyst for pyruvate decarboxylation" *Appl. Clay Sci.* 75-76 (2013) 126.
57. F. Papafotiou, K. Karidi, A. Garoufis, **M. Louloudi**, "Heterogenization of a ruthenium catalyst on silica and its application in olefin oxidation with HOO<sup>t</sup>Bu" *Polyhedron* 52 (2013) 634.
56. M. Drosos, **M. Louloudi**, M. Jerzykiewicz, Y. Deligiannakis, "Progress Towards Synthetic Modelling of Humic Acid (II): Peering into the Physicochemical Polymerization Mechanism" *Colloids Surf. A* 389 (2011) 254.
55. K.C. Christoforidis, E. Seristatidou, **M. Louloudi**, I.K. Konstantinou, E.R. Milaeva, Y. Deligiannakis, "Mechanism of Catalytic Degradation of 2,4,6-Trichlorophenol by a Ferroporphyrin Catalyst" *Appl. Catal. B- Environ.* 101 (2011) 417.
54. G.S. Armatas, G. Bilis, **M. Louloudi**, "Highly Ordered Mesoporous Zirconia-Polyoxometalate Nanocomposite Materials for Catalytic Oxidation of Alkenes" *J. Mater. Chem.* 21 (2011) 2997.
53. Ag. Stamatis, Ch. Vartzouma, **M. Louloudi**, "A biomimetic tris-imidazole/Mn(II) system for homogeneous catalytic epoxidation of olefins with H<sub>2</sub>O<sub>2</sub>" *Catalysis Communications* 12 (2011) 475.
52. **M. Louloudi**, Y. Deligiannakis, "Substrate and Co-catalyst Effects on the Local Coordination Environment of a Fe-Porphyrin Catalyst" *Chem. Phys. Lett.* 494 (2010) 289.
51. G. Bilis, **M. Louloudi**, "The catalytic function of non-heme iron(III) complex for hydrocarbon oxidation" *Bioinorg. Chem. Appl.* art. no. 861892 (2010).
50. K.C. Christoforidis, **M. Louloudi**, Y. Deligiannakis, "Complete Dechlorination of Pentachlorophenol by a Heterogeneous SiO<sub>2</sub>-Fe-Porphyrin Catalyst" *Appl. Catal. B- Environ.* 95 (2010) 297.
49. K.C. Christoforidis, **M. Louloudi**, E.R. Milaeva, Y. Deligiannakis, "Mechanism of Catalytic Decomposition of Pentachlorophenol by a Highly Recyclable Heterogeneous Fe-Porphyrin Catalyst" *J. Catal.* 270 (2010) 153.
48. G. Bilis, K.C. Christoforidis, Y. Deligiannakis, **M. Louloudi**, "Hydrocarbon oxidation by homogeneous and heterogeneous non-heme iron(III) catalysts with H<sub>2</sub>O<sub>2</sub>" *Catal. Today* 157 (2010) 101.
47. Ag. Stamatis, D. Giasafaki, K.C. Christoforidis, Y. Deligiannakis, **M. Louloudi**, "The catalytic function of SiO<sub>2</sub>-Immobilized Mn(II)-Complexes for Alkene Epoxidation with H<sub>2</sub>O<sub>2</sub>" *J. Mol. Catal. A* 319 (2010) 58.

**Also published:** 30 articles in refereed international and national Proceedings and several Proceedings abstracts

