

INFORMAȚII PERSONALE

Aurora Mocanu

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Sexul Feminin | Data nașterii 04/10/1953 | Naționalitatea Româna

EXPERIENȚA
PROFESIONALĂ

2006–Prezent

Conferentiar

Universitatea 'Babes-Bolyai', Facultatea de Chimie si Ingineria Chimica, Str. Arany Janos nr. 11, Cluj-Napoca

Didactic - chimie fizica, termodinamica, chimie coloidala, membrane, filme subtiri, autoasamblari, structuri supramoleculare, chimie clinica.

Cercetare, dezvoltare si inovatie - stiinta materialelor, materiale biodegradabile, nanoparticule de aur si argint, recunoastere moleculara in sisteme supramoleculare de tipul ciclodextrina-antioxidanti, filme Langmuir -Blodgett .

2003–2006

Lector

Universitatea 'Babes-Bolyai', Facultatea de Chmie si Inginerie Chimica, str. Arany Janos nr. 11, Cluj-Napoca

Didactic - chimie fizica, termodinamica, chimie coloidala, membrane, filme subtiri, autoasamblari, structuri supramoleculare, chimie clinica.

Cercetare, dezvoltare si inovatie - stiinta materialelor, materiale de ambalaj, materiale biodegradabile, nanoparticule de aur si argint, recunoastere moleculara in sisteme supramoleculare de tipul ciclodextrina-antioxidanti.

Dezvoltarea de produse ecologice din materiale biodegradabile destinate realizarii de ambalaje si elemente de protectie in industrie si agricultura.

Manager de proiect si membru in caderul a **41 proiecte nationale** de cercetare, incluzand CEEX, CNCSIS, Academia Romana, si un proiect European prin Impact Program, ANCS, PN2, PN3 si European Structural Funds.

Conducator in **colaborarea academica si stiintifica** intre Universitatea 'Babes-Bolyai' din Cluj-Napoca (UBB) si Universitatea Thessaloniki, Grecia (**6 publicatii comune**)

1999–2003

Cercetator stiintific gradul II

Universitatea 'Babes-Bolyai', Facultatea de Chimie si Inginerie Chimica, Str. Arany Janos, nr. 11, Cluj-Napoca

Didactic - chimie fizica, termodinamica, biofizica, stiinta materialelor nanostructurate, chimie coloidala, filme subtiri, filme Langmuir-Blodgett

Cercetare, dezvoltare si inovatie - stiinta materialelor si nanotehnologie, biofizica si interactiuni moleculare, monostraturi de carbohidrati si proteine

1982–1999 **Cercetator stiintific**

Universitatea 'Babes-Bolyai', Facultatea de Chimie si Inginerie Chimica, str. Arany Janos, nr. 11, Cluj-Napoca

Didactic - chimie fizica, termodinamica, structura chimica

Cercetare, dezvoltare si inovatie - stiinta materialelor si nanobiotehnologie, stiinta membranelor, biofizica recunoasterii moleculare in sisteme nanostructurate, monostraturi de proteine si carbohidrati.

1976–1982 **Chimist, Conducator al Laboratorului de Chimie Analitica si Productie Chimica**

Fabrica de Chimie Industriala, Turda

Cercetare, dezvoltare si inovatie in industria chimica.

EDUCAȚIE ȘI FORMARE

1998 **Diploma doctor in chimie**

Universitatea 'Babes-Bolyai', Facultatea de Chimie si Inginerie Chimica, Str. Arany Janos, nr. 11, Cluj-Napoca

Specializarea chimie fizica

Competente teoretice si experimentale in obtinerea unor filme subtiri din lecitina si anestezice ca modele de membrana naturala. Caracterizarea structurala si termodinamica a filmelor Gibbs de adsorbite. Rezultatele sunt implicate in mecanismele interfaciale ale anestezicelor moleculare.

1972–1976 **Chimist**

Universitatea 'Babes-Bolyai', Facultatea de Chimie si Inginerie Chimica, str. Arany Janos nr 11, Cluj-Napoca

Specializarea chimie fizica, chimia coloizilor si interfetelor.

1968–1972 **Diploma de bacalaureat**

Liceul theoretic Mihai Viteazu, din Turda, jud. Cluj

COMPETENȚE PERSONALE

Limba(i) maternă(e) română

Alte limbi străine cunoscute

	ÎNȚELEGERE		VORBIRE		SCRIERE
	Ascultare	Citire	Participare la conversație	Discurs oral	
franceză	C2	C2	C2	C2	C2
engleză	C1	C1	B2	B2	C2

Niveluri: A1 și A2: Utilizator elementar - B1 și B2: Utilizator independent - C1 și C2: Utilizator experimentat
 Cadrul european comun de referință pentru limbi străine

Competențe de comunicare

Bune abilitati de comunicare dobandite in urma activitatii in domeniul didactic si in cercetare. Abilitatea de a lucra in echipe nationale si internationale si de adaptare la medii multiculturale.

Competențe organizaționale/manageriale

Abilitatea de a coordona studentii in finalizarea lucrarilor de licenta si dizertatie. Bune abilitati organizationale dobandite in urma lucrului in cadrul diverselor proiecte de cercetare, atat ca director de proiect cat si ca membru in echipa de cercetare.

Competențe dobândite la locul de muncă

Cunostiinte avansate in chimie, fizica si matematica. Participare la internship-uri la Universitatea din Wyoming (USA, 2000), Thessaloniki (Grecia, 2001).

Abilitatea de a proiecta dispozitive medicale bazate pe detectarea suprafetelor in cazul aminoacizilor si proteinelor .

Proiectarea de noi dispozitive pentru substitutii osoase.

Abilitate avansata de experiment in chimia fizica.

Abilitatea de a dezvolta noi materiale ecologice.

Cunostiinte avansate in calorimetrie, DSC, utilizate in caracterizarea amidonului si a materialelor ecologice pe baza de amidon.

Publicatii:

- 6 carti la edicuri recunoscute

- peste 130 articole, in reviste stiintifice ISI (78)

- 41 grant-uri (ca membru sau coordonator al echipei de cercetare)

- Domenii de interes: termodinamica chimica, chimia fizica a coloizilor si interfetelor, nanostructuri, auto-asamblari Langmuir-Blodgett, tehnici de imagistica moderne, AFM, SEM, TEM, STM.

- Membru in Societatea Romana de Chimie, Societatea Romana de Biomateriale, Societatea Americana de Chimie, Societatea de Biofizica.

Competențele digitale

Pachetul Microsoft Office (Word, Excel, PowerPoint).

 INFORMAȚII
 SUPLIMENTARE

Articole științifice și brevete

Articole ISI

- C. Garbo, M. Sindilaru, A. Carlea, Gh. Tomoaia, V. Almasan, I. Petean, A. Mocanu, O. Horovitz, M. Tomoaia-Cotisel, "Synthesis and structural characterization of novel porous zinc substituted nanohydroxyapatite powders" *Particulate Science and Technology*, 35(1), 29-37 (2017)
- P. T. Frangopol, A. Mocanu, V. Almasan, C. Garbo, R. Balint, G. Borodi, I. Bratu, O. Horovitz, M. Tomoaia-Cotisel, "Synthesis and Structural Characterization of Strontium Substituted Hydroxyapatites", *Rev Roum Chim*, 61 (4-5), 337-344, (2016)
- A. Mocanu, O. Horovitz, Cs. P. Racz, M. Tomoaia-Cotisel, "Green synthesis and characterization of gold and silver nanoparticles", *Rev. Roum. Chim.*, 60(7-8), 721-726 (2015)
- Gh. Tomoaia, O. Horovitz, A. Mocanu, A. Nita, A. Avram, C.P. Racz, O. Soritau, M. Cenariu, M. Tomoaia-Cotisel, "Effects of doxorubicin mediated by gold nanoparticles and resveratrol in two human cervical tumor cell lines", *Colloids and Surfaces B: Biointerfaces*, 135, 726-734 (2015).
- A. Mocanu, G. Furtos, S. Rapuntean, O. Horovitz, C. Flore, C. Garbo, A. Danisteanu, Gh. Rapuntean, C. Prejmorean, M. Tomoaia-Cotisel, "Synthesis, characterization and antimicrobial effects of composites based on multi-substituted hydroxyapatite and silver nanoparticles", *Appl. Surf. Sci.*, 298, 225-235 (2014).
- A. Mocanu, Gh. Tomoaia, C. Garbo, R.D. Pasca, P. T. Frangopol, O. Horovitz and M. Tomoaia-Cotisel, "New procedure to synthesize silver nanoparticles with narrow size distribution applied to local anesthetics detection", *Int. J. Nanomedicine* (2013).
- A. Mocanu, R.-D. Pasca, Gh. Tomoaia, C. Garbo, P. T. Frangopol, O. Horovitz, M. Tomoaia-Cotisel, "New procedure to synthesize silver nanoparticles and their interaction with local anesthetics", *Int. J. Nanomedicine*, 8, 3867-3874 (2013).
- A. Mocanu, R.-D. Pasca, Gh. Tomoaia, A. Avranas, O. Horovitz, M. Tomoaia-Cotisel. Selective Effect of Procaine, Tetracaine and Dibucaine on Gold Nanoparticles. *J. Nanosci. Nanotechnol.*, 12, 1-5 (2012).
- Gh. Tomoaia, P. T. Frangopol, O. Horovitz, L.-D. Bobos, A. Mocanu and M. Tomoaia-Cotisel, "The effect of arginine on gold nanoparticles in colloidal solutions and in thin films", *Journal of Nanoscience and Nanotechnology*, 11, 7762-7770 (2011).
- U. V. Zdrenghea, Gh. Tomoaia, D.-V. Pop-Toader, A. Mocanu, O. Horovitz and M. Tomoaia-Cotisel, "Procaine effect on human erythrocyte membrane explored by atomic force microscopy", *Combinatorial Chemistry & High Throughput Screening*, 14 (4), 237-247 (2011).
- A. Avranas, A. Konstantinou, A. Mocanu and Maria Tomoaia-Cotisel, "Adsorption of procaine at the mercury/electrolyte solution interface", *Colloids and Surfaces A: Physicochem. Eng. Aspects*, 332, 36-42 (2009).
- A. Mocanu, I. Cernica, Gh. Tomoaia, L.-D. Bobos, O. Horovitz and M. Tomoaia-Cotisel, "Self-assembly characteristics of gold nanoparticles in the presence of cysteine", *Colloids and Surfaces A: Physicochem. Eng. Aspects*, 338, 93-101 (2009).
- O. Horovitz, Gh. Tomoaia, A. Mocanu, T. Yupsanis and M. Tomoaia-Cotisel, "Protein binding to gold auto-assembled films", *Gold Bulletin*, 40 (4), 295-304 (2007).
- O. Horovitz, Gh. Tomoaia, A. Mocanu, T. Yupsanis and M. Tomoaia-Cotisel, "Protein binding to gold colloids", *Gold Bulletin*, 40 (3), 213-218 (2007).
- O. Horovitz, Gh. Tomoaia, Cs. Racz, A. Mocanu, L. Bobos and M. Tomoaia-Cotisel, "Surface properties of some carotenoids spread in monolayers at the air/water interface. Experimental and computational approach", *Centr. Eur. J. Chem.*, 4(3), 489-501 (2006).
- O. Cozar, N. Leopold, C. Jelic, V. Chis, L. David, A. Mocanu, and M. Tomoaia-Cotisel, "IR, Raman and surface-enhanced Raman study of desferrioxamine B and its Fe (III) complex,

ferrioxamine B”, *J. of Molecular Structure*, 788, 1-6 (2006).

Alte articole relevante

I. Bratu, M. Tomoaia-Cotisel, G. Damian and A. Mocanu, “Secondary structure analysis of barley aleurone holoprotein by FTIR spectroscopy”, *Journal of Optoelectronics and Advanced Materials*, 9 (3), 672-674 (2007).

M. Tomoaia-Cotisel, A. Mocanu, N. Leopold, M. Vasilescu, V. Chiş and O. Cozar, “FT-Raman and NMR investigation of the protein extracted from barley aleurone cells”, *Journal of Optoelectronics and Advanced Materials*, 9 (3), 637-640 (2007).

O. Cozar, N. Leopold, M. Tomoaia-Cotisel, A. Mocanu and C. Jelic, “IR, NMR and EPR investigation of iron recognizing molecule-desferrioxamine B”, *Journal of Optoelectronics and Advanced Materials*, 9 (12), 3912-3916 (2007).

C. Prejmerean, Gh. Tomoaia, M. Tomoaia-Cotisel, A. Mocanu, O. Horovitz, M. Moldovan, D. Ducea, G. Voicu and I. Petean, “Surface organization and stability of some composites exposed to biologic medium. Atomic force microscopy observations”, *Journal of Optoelectronics and Advanced Materials*, 10 (3), 597-601 (2008).

M. Tomoaia-Cotisel, C. Prejmerean, Gh. Tomoaia, A. Mocanu, M. Trif, A. Badanoiu, T. Buruiana, O. Horovitz and A. Hosu, “Characterization by atomic force microscopy of some composites based on surface active glasses and copolymers”, *Journal of Optoelectronics and Advanced Materials*, 10 (4), 937-941 (2008).

Gh. Tomoaia, M. Tomoaia-Cotisel, A. Mocanu, O. Horovitz, L.-D. Bobos, M. Crisan and I. Petean, “Supramolecular organization of collagen and anti-cancer drugs”, *Journal of Optoelectronics and Advanced Materials*, 10 (4), 961-964 (2008).

I. Petean, Gh. Tomoaia, O. Horovitz, A. Mocanu and M. Tomoaia-Cotisel, “Cysteine mediated assembly of gold nanoparticles”, *Journal of Optoelectronics and Advanced Materials*, 10(9), 2289-2292 (2008).

L. Barbu-Tudoran, Gh. Tomoaia, O. Horovitz, A. Mocanu and M. Tomoaia-Cotisel, “Self-assembly characteristics of gold nanoparticles in the presence of arginine”, *Journal of Optoelectronics and Advanced Materials*, 10(9), 2293-2297 (2008).

Gh. Tomoaia, C. Borzan, M. Crisan, A. Mocanu, O. Horovitz, L.-D. Bobos and M. Tomoaia-Cotisel, “Nanostructure formation of collagen and anti-cancer drugs investigated by atomic force microscopy”, *Rev. Roum. Chim.*, 54(5), 365-374 (2009).

Gh. Tomoaia, M. Tomoaia-Cotisel, L.-B. Pop, A. Pop, O. Horovitz, A. Mocanu, N. Jumate and L.-D. Bobos, “Synthesis and characterization of some composites based on nanostructured phosphates, collagen and chitosan”, *Rev. Roum. Chim.*, 56 (10-11), 1039-1046 (2011)

A. Mocanu, R.-D. Pasca, Gh. Tomoaia, C. Garbo, P. T. Frangopol, O. Horovitz, M. Tomoaia-Cotisel, “New procedure to synthesize silver nanoparticles and their interaction with local anesthetics”, *Int. J. Nanomedicine*, 8, 3867-3874 (2013).

A. Mocanu, G. Furtos, S. Rapuntean, O. Horovitz, C. Flore, C. Garbo, A. Danisteanu, Gh. Rapuntean, C. Prejmerean, M. Tomoaia-Cotisel, “Synthesis, characterization and antimicrobial effects of composites based on multi-substituted hydroxyapatite and silver nanoparticles”, *Appl. Surf. Sci.*, 298, 225–235 (2014).

A. Mocanu, O. Horovitz, Cs. P. Racz, M. Tomoaia-Cotisel, “Green synthesis and characterization of gold and silver nanoparticles”, *Rev. Roum. Chim.*, 60(7-8), 721-726 (2015)

Brevete

1) V. Morar, E. Pentek, A. Oltean (cas. Mocanu), A. Fodor, “Procedeu pentru recuperarea cuprului din apele reziduale de la fabricarea oxidului cupric”, Bucuresti, Romania, Brevet nr. 74209/ 13.02.1980

2) Gh. Tomoaia, M. Tomoaia-Cotisel, L. B. Pop, A. Mocanu si A. Pop, "Nanopowders of hydroxyapatite and its substituted derivatives with medical applications and their fabrication

Informatii aditionale:

Peste 20 publicatii in jurnale stiintifice in colaborare cu cercetatori straini din UK (12 articole), SUA (2 articole), Canada (2 articole), Grecia (6 articole).

Scorul relative de influenta: 33.676

Carti si capitole de carti

A. Mocanu, Gh. Tomoaia, C.-R. Ispas, O.-C. Borostean, D. Dubert, V.-D. Pop, L. Bobos and M. Tomoaia-Cotisel, "Two-dimensional nanostructures of dimyristoyl phosphatidylcholine and cholesterol at different interfaces", in *Convergence of Micro-Nano-Biotechnologies*, Series in Micro and Nanoengineering, Volume 9, Editors: Maria Zaharescu, Emil Burzo, Lucia Dumitru, Irina Kleps and Dan Dascalu, Romanian Academy Press, Bucharest, 2006, pp. 178 -191. ISBN: (10) 973-27-1422-0; ISBN: (13) 978-973-27-1422-5. ♦this monograph is hold at many well known university libraries (e.g., King's College, University of London, Aristotle University of Thessaloniki).

Indexul Hirsch este 14 pentru articole (Google Scholar), indexat in Web of Science pentru lider de proiect (Aurora Oltean si Aurora Mocanu)

Total citari – peste 750 (Google Academic), incluzand citari ale articolelor si capitolelor de carti.

Carti chimie fizica:

- co-autor al 6 carti. Un exemplu relevant este:

M. Tomoaia-Cotisel, O. Horovitz and A. Mocanu, "Chemical Thermodynamics Applied in Materials and Engineering Science", University Press, Cluj-Napoca, 2009.

Conferinte

♦2000 "Microstructure of stearic acid in the presence of deferoxamine" June 11-16, in "The 13th International Symposium on Surfactants in Solution", University of Florida, Gainesville, Florida, USA

♦2000 "Modern techniques used to describe the nano roughness of biosurfaces by using atomic force microscopy (AFM), June 22-26, Physical Chemistry Seminar/ University of Wyoming, Physical Chemistry Department, Laramie, WY, USA

♦2002 "Bicomposites made of inorganic powder and various polymers by using self-assembling Langmuir-Blodgett techniques and AFM", March 4-7, Workshop on hybrid materials / Aristotle University/ Physical Chemistry and Biochemistry Departments/Thessaloniki, Greece

♦2005 "Atomic force microscopy studies of Langmuir-Blodgett films: Storage protein from aleurone cells of barley and lipid associations", June 12-15, in "The 79th ACS Colloid and Surface Science Symposium", Clarkson University, Potsdam, USA

♦2005 "Thermodynamic study of the effects of procaine on phospholipid monolayers", June 12-15, in "The 79th ACS Colloid and Surface Science Symposium", Clarkson University, Potsdam, USA

♦2007 "Nanocomposite films formed by globular protein, chitosan, and gold nanoparticles", September 17-21, Nanobionics-IV, Philipps University of Marburg, Marburg, Germany

- ◆2007 “Multifunctional materials based on chitosan, globular protein and gold nanoparticles”, May 20-24, Nanotech-2007, Santa Clara, Hynes Convention Center, California, USA
- ◆2008 “Functional materials based on gold nanoparticles, protein and chitosan”, January 23-25, “International Conference on Advanced Processing for Novel Functional Materials”, APNFM 2008, Dresden, Germany
- ◆2008 “Nanotechnology: Particles and interactions, self-assemblies, thin films, nanocomposites and applications”, April 21-24, Workshop at Aristotle University, Greece
- ◆2008 “Nanoscale structure of collagen fibrils using AFM and SEM”, May 18-23, in “The ESF-COST Conference on Natural Products Chemistry, Biology and Medicine”, Acquafredda di Maratea, Italy
- ◆2008 “Nanoscale structural characterization of collagen fibers”, October 8-9, in “The 7th International Symposium on SPM in the Life Sciences”, Berlin
- ◆2009 “Characterization of protein binding to gold nanoparticles”, March 29-31, The International Nanotechnology Conference on “Nano-materials and nanomedicine”, Nano Israel 2009, Jerusalem, Israel.
- ◆2010 “Quercetin and beta-cyclodextrin supramolecular associations investigated by FTIR, DSC, X-ray diffraction and molecular modeling”, May 9-12, “The 15th international cyclodextrin symposium”, Vienna, Austria
- ◆2011 “Scaffolds made of nanostructured phosphates, collagen and chitosan for cell cultures”, “The 5th International Granulation Conference”, June 20-22, Lausanne, Switzerland.
- ◆2012 “Structural and Thermodynamic Characterization of Cholesterol and Dimyristoyl Phosphatidyl Choline Monolayers at the Air/Water Interface”, Paris LBT, July 10-13, Paris, France.
- ◆2013 “Scaffolds made of nano hydroxyapatite, collagen and chitosan for oimproved adhesion and bioactivity of osteoblasts”, “The 6th International Granulation Conference”, June 26-28, oral presentation, published in proceedings Sheffield, UK.
- ◆ 2015 M. Tomoaia-Cotisel, Gh. Tomoaia, A. Mocanu, “Effects of maturation conditions on the structure of hydroxyapatite nanopowder”, Oral presentation, at the SUN-SNO-GUIDENANO Sustainable Nanotechnology Conference, 9-11 March, Venice, Italy
- ◆ 2015 Gh. Tomoaia, A. Tomoaia-Cotisel, A. Mocanu, M. Tomoaia-Cotisel “Innovative hydroxyapatites, collagen and chitosan scaffolds for enhanced adhesion, growth and bioactivity of human osteoblasts in vitro”, “The 20th International Conference on Composite Materials: ICCM20”, 19-24 July, Copenhagen.
- ◆2017 A. Mocanu, M. Tomoaia-Cotisel “Frontier research in advanced nanostructured hydroxyapatites” International Conference on Materials Sciences and Nanomaterials (ICMSN 2017), July 15-17, Barcelona, Spain, 2017

Proiecte de cercetare**Coordonator si membru in echipa de cercetare:**

*Thermodynamic and kinetical study of the adsorption of biosurfactants with anti-carcinogenic activity at fluid interfaces, ANSTI Grant, (Coordonator: Dr..A. Mocanu)

*Interaction mechanisms of anaesthetics with lipid components of cell membranes, Grant of the Romanian Academy

*Thermodynamics of galactolipid surface films. Numerical analysis of phase diagrams, ANSTI, Grant

*Influence of anti-carcinogenic chemical compounds on lipidic membranes and bio-membranes, CNCSIS Grant, 2000-2002, (Coordonator: Dr..A. Mocanu)

*Physical chemistry of supramolecular systems from biological active substances, CNCSIS Grant

*Research and development of nanostructured systems with applications in biomolecular recognition at fluid interfaces. Modeling and experiment, CNCSIS Grant (Coordonator: Dr. A. Mocanu)

*Interfacial nanofabrication strategies in the research and development of new functionalized nanomaterials and supramolecular plane nanostructures for nanotechnology and nanodevices, CEEEX

*Methods and technologies based on molecular and cellular medicine applied in surgery and treatment of bone cancer, bone metastases and osteo-articular lesions, PN2

“The ecological products development out of biodegradable materials, for packages and protection elements”, PN2

“ Multifunctional nanostructures formed of gold or silver nanoparticles and different biomolecules with medical applications” , Idei

“Development of new tools and smart composites based on advanced nanotechnology for medical applications” PN 2

”Multifunctional injectable nanoHap composites for the treatment of osteoporotic fractures” Euronanomed

“Development of innovative nanomaterials based on advanced nanotechnology with applicability in prophylaxis of dental and parodontal diseases” PN2 (Coordonator: Dr..A. Mocanu)

“Innovative composites with antimicrobial properties comprising ceramic nanoparticles and silver nanoparticles, functionalized with biomolecules, embedded into polymer matrix “ PCE (Coordonator: Dr..A. Mocanu)

Declar pe proprie raspundere ca informatia prezentata mai sus este reala.

Conferentiar, Dr. Aurora Mocanu