

Curriculum Vitae

Monica FOCȘAN (născută IOSIN)



CARIERĂ PROFESIONALĂ:

- **18 October 2019:** Titlul tezei de abilitare: *Designed Plasmonic-Based NanoPlatforms to Provide Multiple Functionalities from Efficient Nanoscopic Light Sources to Integrated Multimodal Biosensing and Diagnosis*
- **2015-prezent:** Cercetător Științific grad I (CS I), Universitatea Babeș-Bolyai
- **2012-2013:** Concediu creștere copil
- **2012-2016:** Cercetător Științific grad III (CS III), Universitatea Babeș-Bolyai
- **2010-2012:** Bursă Postdoctorală, Universitatea Babeș-Bolyai, România (Prof. Simion Aștilean)
- **2006-2009:** Doctor în Fizică, co-direcție Universitatea Joseph-Fourier, Franța/Universitatea Babeș-Bolyai, România. Titlul Tezei: *Sinteză de Nanoparticule de Aur și Microfabricarea unor Structuri Proteice pentru Aplicații Biologice (Prof. Simion Aștilean și Dr Patrice Baldeck)*
- **2005-2007:** Masterat în Fizică, Universitatea Babeș-Bolyai, stagiul Erasmus de cercetare pe o perioadă de 6 luni la Universitatea Joseph-Fourier, Grenoble, Franța. Titlul Dizertației: *Applications de l'absorption à deux photons à la photochimie intracellulaire in vivo*
- **2001-2005:** Licență în Fizică Medicală, Universitatea Babeș-Bolyai, Facultatea de Fizică România

VIZIBILITATEA ACTIVITĂȚII ȘTIINȚIFICE:

- **Publicații:** 85 de articole științifice (vezi anexa I), dintre care 77 în jurnale ISI (IF), dintre care 26 ca prim-autor/autor de corespondență, multe dintre acestea în jurnale prestigioase: *Nano Letters* (IF-13.19), *Biosens Bioelectron* (IF-7.8), *ACS Appl Mater Interfaces* (IF-7.5), *Nanoscale* (IF-6.7), *Analytical Chemistry* (IF-6.04), *J Phys Chem C* (IF-4.8), *Biomaterials Science* IF-6.843, *Colloids Surfaces B* (IF-5.3); *Nature Scientific Reports*, etc.
- 1 carte, 2 capitole de carte Editura Elsevier.
- **Index Hirsh: 26 (Scholar)\24 (WoS)**, citări: 1770 (Scholar)
- Conferințe Internaționale: peste 100 comunicări; 6 prezentări invitate;
- “High-level scientific visit for invited researchers” grant, Campus France, Lyon (2015).



- **Bursă L'Oreal -UNESCO “Femeile din Știință” (2016).**
- **Diplomă de Excelență Științifică**, Premiul II, Concursul Național “Rada Mihalcea, Tineri Cercetători în Știință și Inginerie” (2016).
- Diplomă de Excelență Științifică, Universitatea Babeș-Bolyai (2016, 2020).
- **Interviu de Excelență UBB** (<https://news.ubbcluj.ro/dr-monica-focsan-iosin-fizician-cercetator-stiintific-grad-i-cs-i-institutul-de-cercetari-interdisciplinare-in-bio-nano-stiinte/>).
- **UBB Advanced Fellowships**, Institutul de Studii Avansate în Știință și Tehnologie - Institutul STAR-UBB (2018).
- **Premiul Academiei Române “Constantin Miculescu” pentru anul 2016 (2018).**

ACTIVITĂȚI DIDACTICE

- **2022-prezent** – Curs *Nanobiofotonică*, nivel master I-II Facultatea de Fizică, Universitatea Babeș-Bolyai.
- **2022-prezent** – Curs *Aplicatii tehnologice ale laserilor. Biofotonică, an II, nivel licență* Facultatea de Fizică, Universitatea Babeș-Bolyai.
- **2013-2018** – Predare de laboratoare: “*Monitorizarea denaturării proteinelor utilizând spectroscopia de fluorescență*”, studenților de an I și II nivel master, Facultatea de Fizică, Universitatea Babeș-Bolyai. Materialul curricular a fost elaborat de către Monica Focșan.
- **2011** – Curs: “*Optica Generală*”, studenților de anul II nivel licență, Facultatea de Fizică, Universitatea Babeș-Bolyai, Extensia Zalău.
- **2010-2016** – Predare de laboratoare: “*Fluorescență Moleculară*”, studenților de an I nivel master, Facultatea de Fizică, Universitatea Babeș-Bolyai. Materialul curricular a fost elaborat de către Monica Focșan.
- **2010-2016** – Predarea laboratoarelor de practică: “*Introducere în nanotehnologii*”, studenților de anul II nivel licență, Facultatea de Fizică, Universitatea Babeș-Bolyai.
- **2017-2018** – « **Biophysique** », linia franceză, Universitatea de Științe Agricole și Medicină Veterinară (USAMV), Cluj Napoca.
- **2018-prezent** - Predare de laboratoare: **Optică**, Fizică medicală și Fizică tehnologică an II, Facultatea de Fizică, Universitatea Babeș-Bolyai.
- **2010 - prezent** – Supervizarea a 18 studenți nivel licență și 10 studenți nivel masterat.
- **2016 - prezent** – Mentor științific în 8 teze doctorale.
- **2018** - Referent în comisie de doctorat internațională, Guillaume Micouin, ENS Lyon, Franța
- **2020** - Referent în comisie de doctorat, Andreea Campu, Universitatea Babeș-Bolyai.
- **2021** - Referent în comisie de doctorat, Raluca Borlan, Universitatea Babeș-Bolyai.
- **2021** - Referent în comisie de doctorat, Tie Bi Dje Leopold, Universitatea Babeș-Bolyai.
- **2021** - Referent în comisie de doctorat, Cristian Tira, Universitatea Babeș-Bolyai.
- **6.06.2015-14.06.2015, oct-nov 2015, iunie 2016**: Ecole Normales Supérieures de Lyon, Universitatea Claude Bernard, France. Subiect de Cercetare: *Microfluidic platform for integrated plasmonic detection*

SPECIALIZĂRI ȘI CALIFICĂRI:

- **25.02.2014-27.02.2014**: „6th European short course on Time-Resolved Microscopy and Correlation Spectroscopy” și „SymPhoTime Training Day” în PicoQuant, Berlin, Germania
- **1.10.2011-15.12.2011** Laboratorul Interdisciplinar de Fizică, Franța, Subiect de Cercetare: *Fabricarea Laser de microchipuri 3D active și ultrasensibile SERS în canale microfluidice.*
- **10.06.2011-18.06.2011; și noiembrie 2017** Universitatea Paris 13, Facultatea de Medicină, Subiect de Cercetare: *Biosenzor LSPR pentru detecția proteinelor*

- **2006-2009** (peste 1 an) Laboratorul Interdisciplinar de Fizică, Universitatea Joseph-Fourier. Subiect de Cercetare: *Microfabricarea de structuri proteice pentru aplicații biologice*
- **15.02.2006-1.07.2006** Stagiul Master, Laboratorul Interdisciplinar de Fizică, Universitatea Joseph-Fourier, Franța. Subiect de Cercetare: *Fabricarea Laser de microstructuri proteice 3D biocompatibile*

DIRECTOR PROIECTE DE CERCETARE:

- Mai jos sunt enumerate proiectele/bursele naționale/internaționale câștigate pe bază de competiție în calitate de director de proiect. **Valoarea totală a acestora depășește 880 kEuro:**

→ ***Portable Plasmonic Nanochip for Fast-On-Site Cardiac Troponin Biomarker Quantitative Diagnostic Test***

Suma totală: 600.000 Lei

Project UEFISCDI: PN-III-P2-2.1-PED-2019-3345

Project implementation period: Nov 2020 - Oct 2022

→ ***Theranostic microplatforms for multimodal therapy of human ocular pathologies, a new paradigm in biomedical applications***

Project UEFISCDI, PN-III-P2-2.1-PED-2019-4558

Project implementation period: Nov 2020 - Oct 2022

Leader UBB: CS I Monica Focsan

→ ***Flexible PDMS-integrated Plasmonic Paper as Versatile Nanochip for Metal Enhanced Fluorescence Biosensing***

Project UEFISCDI, PN-III-P1-1.1-TE-2019-1959

Project implementation period: Sept 2020 - Aug 2022

Project Director: CS I Monica Focsan

→ ***Fabricare de nanoplatforme senzorialice noi, flexibile și ieftine pe bază de hartie realizate prin caligrafie plasmonică pentru detecția ultrasensibilă multiplexată de biomarkeri specifici cancerului (NanoDet4All), câștigat pe poziția 1.***

Agenția finanțatoare: UEFISCDI; Resurse Umane, Tinere Echipe, PN-III-P1-1.1-TE-2016-2095

Suma totală: ~99.000 EURO

Perioada: Mai 2018 - aprilie 2020

Web page: <https://sites.google.com/site/nanoforall2018/home>

→ ***Biosenzor Plasmonic- Microfluidic pentru Detecția în timp real a unor Biomarkeri relevanți (NANOFLU)***

Agenția finanțatoare: UEFISCDI; Program în parteneriat

Suma totală~ 327.000 EURO

Perioada: iulie 2013-septembrie 2017

Web: <https://sites.google.com/site/nanoflusersensors/home>

→ ***Controlling FRET by surface plasmon resonance in multilayer "core-shell" metallic nanoparticles towards efficient nanoscopic light sources (NanoLight), câștigat pe poziția 3.***

Agenția finanțatoare: UEFISCDI; Resurse Umane, Tinere Echipe

Suma totală: ~122.155 EURO

Perioada: October 2015 - September 2017

Web page: <https://sites.google.com/site/nanolight2014/>

→ ***Platformă microfluidică pentru detecția plasmonică integrată (2plamidet)***

Agenția finanțatoare: UEFISCDI, **Proiect Internațional** Brancusi România-Franța

Suma totală: ~ 5.000 EURO

Perioada: 2015-2016

→ ***Fabricarea unui model de biosenzor plasmonic cu caracteristici adecvate detecției în timp real a unor biomarkeri relevanți***

Agenția finanțatoare: Universitatea Babeș-Bolyai, grant intern

Suma totală ~4.500 Euro

Perioada 2013-2014

→ ***Fabricarea de nanosonde plasmonice ultrasensibile pentru aplicații biologice***

Agenția finanțatoare: Grant Postdoctoral în cadrul proiectului POSDRU/89/1.5/S/60189

Suma totală: ~ 21.000 Euro

Perioada: 2010-2014

→ ***Dezvoltarea unor metode pentru biodetecția plasmonică și nanostructurarea proteinelor prin absorpția laser a doi fotoni***

Agenția finanțatoare: CNCSIS, National Young PhD grant

Suma totală ~ 9.700 Euro

Perioada: 2007-2009

→ **Aplicații ale nanoparticulelor din metale nobile în Biologie Medicină și Biotehnologii**

Agenția finanțatoare: **Bursă internațională**, Federația Mondială a Cercetătorilor, Elveția

Suma totală: ~ 1.300 Euro

Perioada: 2006-2007

Web: www.federationofscientists.org

→ ***Dezvoltarea de metode pentru biodetecția plasmonică***

Agenția finanțatoare: **Grant internațional**, Agence Universitaire de la Francophonie (AUF), Franța

Suma totală: ~ 13.000 Euro

Perioada: 2007-2009

→ Membru cheie în > 25 proiecte naționale. Pentru detalii vezi:

<https://www.nanobiophotonics.ro/projects/national-projects>

- **2006-2007** Societatea Italiană de Fizică
- **2006-prezent** Societatea Română de Biofizică

1. B. Stoean, L. Gaina, C. Cristea, R. Silaghi-Dumitrescu, A. Branzanic, **M. Focsan**, E. Fischer-Fodor, B. Tigu, C. Moldovan, A. Cegan, P. Achimas-Cadariu, S. Astilean, L. Silaghi-Dumitrescu, New methylene blue analogues with N-piperidinyl-carbinol units: Synthesis, optical properties and in vitro internalization in human ovarian cancer cells, *Dyes and Pigments* 205, 2022, 110460 (**IF 4.889**).
2. M. Potara, S. Suarasan, A-M. Craciun, **M. Focsan**, A-M. Hada, S. Astilean, Probing polyvinylpyrrolidone-passivated graphene oxide nanoflakes as contrast agents inside tissue-like phantoms via multimodal confocal microscopy, *Talanta* 247 2022 123581 (**IF 6.07**).
3. D. R. Lazar, F. L. Lazar, C. Homorodean, C. Cainap, **M. Focsan**, S. Cainap, D. M. Olinic, High-Sensitivity Troponin: A Review on Characteristics, Assessment, and Clinical Implications, *Disease Markers* (2022) 9713326 (**IF 3.434**).
4. B. Boga, I. Székely, **M. Focsan**, M. Baia, T. Szabó, L. Nagy, Z. Pap, Sensor surface via inspiration from Nature: The specific case of electron trapping in TiO₂/WO₃ (· 0.33 H₂O) and reaction center/WO₃ (· 0.33 H₂O) systems, *Applied Surface Science* 572, 2022, 151139 (**IF 6.707**).
5. R. Ghiman, R. Pop, D. Rugina, **M. Focsan**, Recent progress in preparation of microcapsules with tailored structures for bio-medical applications, *Journal of Molecular Structure* 1248, 2022, 131366 (**IF 3.196**).
6. A. Campu, F. Lerouge, D. Maniu, K. Magyar, **M. Focsan**^{*}, Ultrasensitive SEIRA detection using gold nanobipyramids: Toward efficient multimodal immunosensor, *Journal of Molecular Structure* 1246, 2021, 131160 (**corresponding author, IF 3.196**).
7. A.-M. Hada, M. Zetes, **M. Focsan**, T. Nagy-Simon, A. M. Craciun, Novel paper-based sensing platform using photoluminescent gold nanoclusters for easy, sensitive and selective naked-eye detection of Cu²⁺, *Journal of Molecular Structure* 1244, 2021, 130990 (**IF 3.196**).
8. S. Suarasan, C. Tira, M. M. Rusu, A.-M. Craciun, **M. Focsan**^{*}, Controlled Fluorescence Manipulation by Core-Shell Multilayer of Spherical Gold Nanoparticles: Theoretical and Experimental evaluation *Journal of Molecular Structure* 1244, 2021, 130950 (**corresponding author, IF 3.196**).
9. T. Nagy-Simon, O. Diaconu, **M. Focsan**, A. Vulpoi, I. Botiz, A.-M. Craciun, Pluronic stabilized conjugated polymer nanoparticles for NIR fluorescence imaging and dual phototherapy applications, *Journal of Molecular Structure* 1243, 2021, 130931 (**IF 3.196**).
10. N. Sharma, Z. Pap, I. Székely, **M. Focsan**, G. Karacs, Z. Nemet, S. Garg, K. Hernadi, Combination of iodine-deficient BiOI phases in the presence of CNT to enhance

photocatalytic activity towards phenol decomposition under visible light, *Applied Surface Science* 565, 2021, 150605 (IF 6.707).

11. M. Nistor, **M. Focsan**, L. Gaina, M. Cenariu, A. Pinte, C. Socaciu, D. Rugina, Real-time fluorescence imaging of anthocyanins complexed with diphenylboric acid 2-aminoethyl inside B16–F10 melanoma cells, *Phytochemistry* 189 (2021) 112849 (IF 4.07).
12. R. Borlan, D. Stoia, L. Gaina, A. Campu, G. Marc, M. Perde-Schrepler, M. Sillion, D. Maniu, **M. Focsan***, S. Astilean, Fluorescent Phtalocyanine-Encapsulated Bovine Serum Albumin Nanoparticles: Their Deployment as Therapeutic Agents in the NIR Region, *Molecules*, 26, 2021, 4679 (corresponding author, IF 4.412).
13. R. Borlan, **M. Focsan***, M. Perde-Schrepler, O. Soritau, A. Campu, L. Gaina, E. Pall, B. Pop, O. Baldasici, C. Gherman, D. Stoia, D. Maniu, S. Astilean, Antibody Functionalized Theranostic Protein Nanoparticles for Synergistic Deep Red Fluorescence Imaging and Multimodal Therapy of Ovarian Cancer, *Biomaterials Science* 9, 2021, 6183-6202 (corresponding author, IF 6.843).
14. M. Potara, T. Nagy-Simon, **M. Focsan**, E. Licarete, O. Soritau, A. Vulpoi, S. Astilean, Folate-targeted Pluronic-chitosan nanocapsules loaded with IR780 for near-infrared fluorescence imaging and photothermal-photodynamic therapy of ovarian cancer, *Colloids Surf. B Biointerfaces*, 203, 2021, 111755 (IF 5.268).
15. R. Ghiman, M. Nistor, **M. Focsan***, A. Pinte, S. Aștilean and D. Rugina, Fluorescent Polyelectrolyte System to Track Anthocyanins Delivery inside Melanoma Cells, *Nanomaterials* 11, 2021, 782 (corresponding author, IF 5.076).
16. R. Borlan, **M. Focsan**, S. Astilean and P. Achimas-Cadariu, NIR Fluorescence Captures Clear Images of Cancerous Tumors During Surgery, *BioPhotonics*, September/October 2021 38-41.
17. B. Stoean, D. Rugina, **M. Focsan**, A-M. Craciun, M. Nistor, T. Lovasz, A. Turza, I-D. Porumb, E. Gál, C. Cristea, L. Silaghi-Dumitrescu, S. Astilean and L. Gaina, Novel (Phenothiazinyl)Vinyl-Pyridinium Dyes and Their Potential Applications as Cellular Staining Agents, *Int. J. Mol. Sci.*, 22, 2021, 2985 (IF 5.984).
18. R. Borlan, **M. Focsan***, D. Maniu, S. Astilean, Interventional NIR Fluorescence Imaging of Cancer: Review on Next Generation of Dye-Loaded Protein-Based Nanoparticles for Real-Time Feedback During Cancer Surgery, *Int. J. Nanomedicine*, 16, 2021, 2147—2171 (corresponding author, IF 6.4).
19. A-M Craciun, S. Suarasan, **M. Focsan**, S. Astilean, One-photon excited photoluminescence of gold nanospheres and its application in prostate specific antigen detection via fluorescence correlation spectroscopy (FCS), *Talanta*, 228, 2021, 122242 (IF 6.057).
20. L. De Sio, B. Ding, **M. Focsan**, K. Kogermann, P. Pascoal-Faria, F. Petronella, G. Mitchell, E. Zussman, F. Pierini, Personalized Reusable Face Masks with Smart Nano-Assisted Destruction of Pathogens for COVID-19: A Visionary Road, *Chem. Eur. J.*,

- 27, 2021, 1-20 (**IF 5.2, FRONTISPIECE, Most downloaded in Chem. Eur. J, Wiley**).
21. A.-M. Hada, A.-M. Craciun, M. Focsan, R. Borlan, O. Soritau, M. Todea, S. Astilean, Folic acid functionalized gold nanoclusters for enabling targeted fluorescence imaging of human ovarian cancer cells, *Talanta*, 225, 2021, 121960 (**IF 6.057**).
 22. A. Campu, **M. Focsan***, F. Lerouge, R. Borlan, L. Tie, D. Rugina, S. Astilean, ICG-loaded gold nano-bipyramids with NIR activatable dual PTT-PDT therapeutic potential in melanoma cells, *Colloids and Surfaces B: Biointerfaces* 194, 2020, 111213 (**corresponding author, IF 5.268**).
 23. L. Susu, A. Campu, S. Astilean and **M Focsan***, Calligraphed Selective Plasmonic Arrays on Paper Platforms for Complementary Dual Optical “ON/OFF Switch” Sensing, *Nanomaterials* 10(6), 2020, 1025 (**corresponding author, IF 5.076**).
 24. A. Campu, F. Lerouge, A-M. Craciun, T. Murariu, I. Turcu, S. Astilean and **M. Focsan***, Microfluidic platform for integrated plasmonic detection in laminar flow, *Nanotechnology* 31(33), 2020, 335502 (**corresponding author, IF 3.874**).
 25. R. Borlan, A.S. Tatar, O. Soritau, D. Maniu, G. Marc, A. Florea, **M. Focsan***, S. Astilean, Design of fluorophore-loaded human serum albumin nanoparticles for specific targeting of NIH: OVCAR3 ovarian cancer cells, *Nanotechnology* 31 (31), 315102, (**corresponding author, IF 3.874**).
 26. A.-I. Pricopie, **M. Focșan***, I. Ionuț, G. Marc, L. Vlase, L. Găină, D. C. Vodnar, E. Simon, G. Barta, A. Pîrnău and O. Oniga, Novel 2,4-Disubstituted-1,3-Thiazole Derivatives: Synthesis, Anti-Candida Activity Evaluation and Interaction with Bovine Serum Albumine, *Molecules* 25(5), 2020, 1079 (**corresponding author, IF 4.412**).
 27. L.Tie, M. Răileanu, M. Bacalum, I. Codita, Ș. M. Negrea, C.Ș. Caracoti, E.C Drăgulescu, A. Campu, S. Astilean and **M. Focsan***, Versatile Polypeptide-Functionalized Plasmonic Paper as Synergistic Biocompatible and Antimicrobial Nanoplatform, *Molecules* 2020, 25(14), 3182 (**corresponding author, IF 4.412**).
 28. D. Caccamo, M. Currò, R. Ientile, E AM Verderio, A. Scala, A. Mazzaglia, R. Pennisi, M. Musarra-Pizzo, R. Zagami, G. Neri, C. Rosmini, M. Potara, **M. Focsan**, S. Astilean, A. Piperno and M. T. Sciortino, Intracellular Fate and Impact on Gene Expression of Doxorubicin/Cyclodextrin-Graphene Nanomaterials at Sub-Toxic Concentration, *Int. J. Mol. Sci.* 21(14), 2020, 4891 (**IF 5. 984**).
 29. E. Molnar, E. Gal, L. Gaina, C. Cristea, E. Fischer-Fodor, M. Perde-Schrepler, P. Achimas-Cadariu, **M. Focsan**, L. Silaghi-Dumitrescu, Novel Phenothiazine-Bridged Porphyrin-(Hetero)aryl dyads: Synthesis, Optical Properties, In Vitro Cytotoxicity and Staining of Human Ovarian Tumor Cell Lines, *Int. J. Mol. Sci.* 21(9), 2020, 3178 (**IF 5. 984**).

30. A. Terec, A. Crisan, A.M. Craciun, I. Mihalache, M. Focsan, C. Socaci, D. Maniu, S. Astilean, M. Veca, Surface passivation of carbon nanoparticles with 1,2-phenylenediamine towards photoluminescent carbon dots, *Rev. Roum. Chim.*, 65 (2020) 559-566 (**IF 0.381**).
31. C. Tudor, T. Bohn, M. Iddir, F. V. Dulf, **M. Focșan**, D. Rugină, and A. Pinte, Sea Buckthorn Oil as a Valuable Source of Bioaccessible Xanthophylls, *Nutrients* 12(1), 2020, 76 (**IF 5.719**).
32. A. Campu, AM Craciun, **M Focsan***, S Astilean, Assessment of the photothermal conversion efficiencies of tunable gold bipyramids under irradiation by two laser lines in a NIR biological window, *Nanotechnology* 30(40), 2019, 405701 (**corresponding author, IF 3.551**).
33. Dumitrița Rugină*, Raluca Ghiman*, **Monica Focșan***, Flaviu Tăbăran, Florina Copaciuc, Maria Suci, Adela Pinte, Simion Aștilean, Resveratrol-delivery vehicle with anti-VEGF activity carried to human retinal pigmented epithelial cells exposed to high-glucose induced conditions, *Colloids and Surfaces B: Biointerfaces* 181, 2019, 66-75. (* **These authors contributed equally to this work, IF 3.99**).
34. S Suarasan, AM Craciun, E Licarete, **M Focsan**, K Magyar, S Astilean, Intracellular dynamic disentangling of Doxorubicin release from luminescent nanogold carriers by Fluorescence Lifetime Imaging Microscopy (FLIM) under two-photon excitation, *ACS applied materials & interfaces*, *ACS Appl. Mater. Interfaces* 118, 2019 7812-7822 (**IF-8.097**).
35. L. Tie, **M Focsan***, J Bosson, C Tira, A Campu, A Vulpoi, S Astilean Controlling the end-to-end assembly of gold nanorods to enhance the plasmonic response in near infrared, *Materials Research Express* 6 (9), 2019, 095038 (**corresponding author, IF 1.92**).
36. Sz. Fodor, L.Baia, **M. Focșan**, K. Hernadi, Sz Papp, Designed and controlled synthesis of visible light active copper(I)oxide photocatalyst: From the cubes towards the polyhedrons - with Cu nanoparticles, *Applied Surface Science* 484, 2019, 175-183 (**IF-4.439**).
37. Andreea Campu, Laurentiu Susu, Filip Orzan, Dana Maniu, Ana Maria Craciun, Adriana Vulpoi, Lucian Roiban, **Monica Focsan** and Simion Astilean, Multimodal Biosensing on Paper-Based Platform Fabricated by Plasmonic Calligraphy Using Gold Nanobipyramids Ink, *Frontiers in Chemistry*, 7, 2019, 55 (**autor corespondent, IF 4.155**).
38. A. Campu, F. Lerouge, D. Chateau, F. Chaput, P. Baldeck, S. Parola, D. Maniu, A M Craciun, A. Vulpoi, S. Astilean, **M. Focsan**, Gold NanoBipyramids Performing as Highly Sensitive Dual-Modal Optical Immunosensors, *Anal. Chem.*, 2018, 90 (14), pp 8567–8575 (**autor corespondent, IF 6.04**).

39. Laurentiu Susu, Andreea Campu, Ana Maria Craciun, Adriana Vulpoi, Simion Astilean, **Monica Focsan**, Designing Efficient Low-Cost Paper-Based Sensing Plasmonic Nanoplatfoms, *Sensors* 18 (2018) 3035 (**autor corespondent, IF 2.475**)
40. Boglárka Hampel, Gábor Kovács, Zsolt Czekes, Klára Hernádi, Virginia Danciu, Ovidiu Ersen, Maria Girleanu, **Monica Focsan**, Lucian Baia, Zsolt Pap, Mapping the Photocatalytic Activity and Ecotoxicology of Au, Pt/TiO₂ Composite Photocatalysts *ACS Sustainable Chem. Eng.* 6 2018, 12993-13006 (**IF-6.14**)
41. F Orzan, A Campu, S Suarasan, S Astilean, **M Focsan**, Engineering paper platform loaded with gold nanospheres to improve SERS performance for analyte detection, *Studia UBB Physica* 63 (1-2) 2018 143-151 (**autor correspondent**)
42. **M. Focsan**, A. M. Craciun, M. Potara, C. Leordean, D. Maniu, S. Astileana, Flexible and Tunable 3D Gold Nanocups Platform as Plasmonic Biosensor for Specific Dual LSPR-SERS Immuno-Detection, *Scientific Reports* (Nature Publishing Group), 7 (2017) 14240 (**prim-autor, zona rosie. Top 100 read chemistry papers for Scientific Reports in 2017**)
43. A M Craciun, **M Focsan**, K Magyari, A Vulpoi, Zsolt Pap, Surface Plasmon Resonance or Biocompatibility—Key Properties for Determining the Applicability of Noble Metal Nanoparticles, article review, *Materials* 10 836 (2017) 1-37 (IF=2.64) (**prim-autor, contributie egala**)
44. A. M. Craciun, **M. Focsan**, L. Gaina, S. Astilean, Enhanced one- and two-photon excited fluorescence of cationic (phenothiazinyl)vinyl-pyridinium chromophore attached to polyelectrolyte-coated gold nanorods, *Dyes Pigm.* 136 (2017) 24-30 (**IF=3.4, premiu Publicații de top, acordat de UBB**)
45. **M. Focsan**, A.M. Craciun, S. Astilean, P. Baldeck, Two-photon fabrication of three-dimensional silver microstructures in microfluidic channels for volumetric surface-enhanced Raman scattering detection, *Optical Materials Express* 6 (2016) 1587-1593 (IF=2.844, **prim-autor, zona rosie**)
46. **M. Focsan**, A. Campu, A.M Craciun, M. Potara, C. Leordean, D. Maniu, S. Astilean, A Simple and Efficient Design to Improve the Detection of Biotin-Streptavidin Interaction with Plasmonic Nanobiosensors, *Biosensors and Bioelectronics* 86 (2016) 728-735 (**prim-autor, IF=7.8, TOP 1 în zona roșie; premiu Publicații de top, acordat de UBB**)
47. S. Suarasan, **M. Focsan**, M. Potara, O. Soritau, A. Florea, D. Maniu, S. Astilean, Doxorubicin-Incorporated Nanotherapeutic Delivery System Based on Gelatin-Coated Gold Nanoparticles: Formulation, Drug Release, and Multimodal Imaging of Cellular Internalization, *ACS Applied materials and interfaces* 8 (2016) 22900-22913 (**IF= 7.5, zona roșie**)



48. Suarasan, **M. Focsan**, O. Soritau, D. Maniu, S. Astilean, One-pot, green synthesis of gold nanoparticles by gelatin and investigation of their biological effects on Osteoblast cells, *Colloids and Surfaces B: Biointerfaces*, 132 (2015) 122-13 (IF= 4.287)
49. Lerouge, F.; Navarro, J. R. G.; **Focsan, M.**; et al, Sharp gold based hybrid nanoprobe for cell imaging through dark field microscopy, *Nanobiosystems: Processing, Characterization, and Applications* Viii Volume: 9557 2015
50. C. Leordean, B. Marta, A.M. Gabudean, **M. Focsan**, I. Botiz, S. Astilean, Fabrication of highly active and cost effective SERS plasmonic substrates by electrophoretic deposition of gold nanoparticles on a DVD template, *Appl. Surf. Sci.* 349 (2015) 190-195 (IF= 2.469, zona rosie)
51. **M. Focsan**, A.M. Gabudean, A. Vulpoi, S. Astilean, Controlling the luminescence of carboxyl-functionalized CdSe/ZnS core-shell quantum dots in solution by binding with gold nanorods, *Journal of Physical Chemistry C* 118 (2014) 25190-25199 (IF=4.83, prim-autor)
52. J.R.G. Navarro, F. Lerouge, G. Micouin, C. Cepraga, A. Favier, M.T. Charreyre, N.P. Blanchar, J. Lermé, F. Chaput, **M. Focsan**, K. Kamada, P.L. Baldeck, S. Parola, Plasmonic bipyramids for fluorescence enhancement and protection against photobleaching, *Nanoscale* 6 (2014) 5138-5145 (IF=6.7, zona rosie)
53. DS. Tira, **M. Focsan**, M. Ulinici, D. Maniu, S. Astilean, Rhodamine B-coated gold nanoparticles as effective "turn-on" fluorescent sensors for detection of zinc II ions in water, *Spectroscopy Letters* 47 (2014) 153-159 (IF=0.718)
54. N. Thioune, N. Lidgi-Guigui, N. Cottat, A.M. Gadudean, **M. Focsan**, H.M. Benoist, S. Astilean, M.L. de la Chapelle, Study of gold nanorods-protein interaction by localized surface plasmon resonance spectroscopy, *Gold Bulletin* 46 (2013) 275-281 (IF=1.84, zona rosie)
55. M. Cottat, N. Thioune, A.M. Gabudean, **M. Focsan** et al. Localized Surface Plasmon Resonance (LSPR) Biosensor for the Protein Detection, *Plasmonics* 8 (2013) 699-704 (IF = 2.7, zona rosie)
56. Suarasan, **M. Focsan**, D. Maniu, S. Astilean, Gelatin-nanogold bioconjugates as effective plasmonic platforms for SERS detection and tagging, *Colloids and Surfaces B: Biointerfaces* 103 (2013) 475-481 (IF = 4.287)
57. A.M. Gabudean, **M. Focsan**, S. Astilean, Gold nanorods performing as dual-modal nanoprobe via metal-enhanced fluorescence (MEF) and surface-enhanced Raman scattering (SERS), *Journal of Physical Chemistry C* 116 (2012) 12240-12249 (IF = 4.814, zona rosie)
58. **M. Focsan**, I.I. Ardelean, C. Craciun, S. Astilean, Interplay between gold nanoparticles biosynthesis and metabolic activity of Cyanobacterium *Synechocystis* sp. PCC 6803, *Nanotechnology* 22 (2011) 485101 (IF = 3.979, prim-autor, zona rosie)

59. **M Focsan**, AM Gabudean, V Canpean, Formation of size and shape tunable gold nanoparticles in solution by bio-assisted synthesis with bovine serum albumin in native and denaturated state, *Materials Chemistry and Physics* 129 (2011) 939-942 (**IF = 2.234, prim-autor**)
60. S. Zaiba, F. Lerouge, AM Gabudean, **M. Focsan**, et al. Transparent Plasmonic Nanocontainers Protect Organic Fluorophores against Photobleaching, *Nano Letters* 11 (2011) 2043-2047 (**IF = 13.198**)
61. **M. Iosin**, V. Canpean, S. Astilean Spectroscopic studies on pH- and thermally induced conformational changes of Bovine Serum Albumin adsorbed onto gold nanoparticles, *Journal of Photochemistry and Photobiology A – Chemistry* 217 (2011) 395-401 (**IF=2.243, prim-autor**)
62. V Canpean, **M. Iosin**, S Astilean, Disentangling SERS signals from two molecular species: A new evidence for the production of p,p '-dimercaptoazobenzene by catalytic coupling reaction of p-aminothiophenol on metallic nanostructures, *Chemical Physics Letters* 500 (2011) 277-282 (**IF=2.28**)
63. AM Gabudean, F Lerouge, T. Gallavardin, **M Iosin** et al., Synthesis and optical properties of dyes encapsulated in gold hollow nanoshells, *Optical Materials*, 33 (2011) 1377-138 (**IF=2.023**)
64. **M. Iosin**, P.L. Baldeck, S. Astilean Study of tryptophan – assisted synthesis of gold nanoparticles by combining UV-Vis, fluorescence and SERS spectroscopy, *Journal of Nanoparticle Research* 12 (2010) 2843-2849 (**IF=3.253, prim-autor, zona rosie**)
65. **M. Iosin**, F. Toderas, P.L. Baldeck, S. Astilean, Study of protein–gold nanoparticle conjugates by fluorescence and surface-enhanced Raman scattering, *Journal of Molecular Structure* 924-926 (2009) 196-200 (**IF=1.551, prim-autor, TOP 1 Hotness article 2009 2010**)
66. **M. Iosin**, F. Toderas, P. Baldeck and S. Astilean, In Vitro Biosynthesis of Gold Nanotriangles for Surface-Enhanced Raman Spectroscopy, *Journal of Optoelectronics and Advanced Materials*, 10(9) (2008) 2285-2288 (**IF=0.577, prim-autor**)
67. R. Stiuftuc, F. Toderas, **M. Iosin**, G. Stiuftuc, Anisotropic Gold Nanocrystals: Synthesis and Characterization, *International Journal of Modern Physics B* 24 (2010) 757-761 (**IF=0.86**).
68. **M. Iosin**, P.L. Baldeck and S. Astilean, Plasmon-enhanced fluorescence of dye molecules, *Nuclear Instruments and Methods in Physics Research B*, 267 (2009) 403-405 (**IF=0.999, prim-autor**).
69. F. Toderas, **M. Iosin** and S. Astilean, Luminescence Properties of gold nanorods, *Nuclear Instruments and Methods in Physics Research B*, 267 (2009) 400-402 (**IF=0.999**).
70. A. M. Craciun, A. Diac, **M. Focsan**, C. Socaci, K. Magyari, D. Maniu, I. Mihalache, L. M. Veca, S. Astilean, A. Terec, *Surface passivation of carbon nanoparticles with p-*

phenylenediamine towards photoluminescent carbon dots, *RSC Adv.* 6 (2016) 56944-56951

71. A. Diac*, **M. Focsan***, C. Socaci, A. M. Gabudean, C. Farcau, D. Maniu, E. Vasile, A. Terec, L. M. Veca, S. Astilean, Covalent conjugation of carbon dots with Rhodamine B and assessment of their photophysical properties, *RSC Adv.* 5 (2015) 77662-77669 (IF=3.8, * **contributie egala cu primul autor**)
72. Joyce Laura Da Silva Gonçalves; Silvano Rodrigo Valandro; Hsiu-Fen Wu; Yi-Hsiung Lee; Bastien Mettra; Cyrille Monnereau; Carla Cristina Schmitt Cavalheiro; Agnieszka Pawlicka; **Monica Focsan**; Chih-Lang Lin; Patrice L. Baldeck, 3D printing of natural organic materials by photochemistry, *Proc. SPIE* 9745 (2016)
73. M. Iliut, **M. Iosin**, S. Astilean, Monitoring the effects of ultraviolet and visible light on RH and vitamin A in milk, *Environmental Engineering and Management Journal* 12 (2013) 2443-2448 (IF= 1.258).
74. M. Oltean, A. Calborean, G. Mile, M. Vidrighin, **M. Iosin**, L. Leopold, D. Maniu, N. Leopold, V. Chis, Absorption spectra of PTCDI: A combined UV-Vis and TD-DFT study, *Spectrochimica Acta Part A-Molecular and Biomolecular Spectroscopy*, 97 (2012) 703-710 (IF= 1.977).
75. **M. Iosin**, T Scheul, C. Nizak, O. Stephan, S. Astilean, P. Baldeck. Laser microstructuration of three-dimensional enzyme reactors in microfluidic channels, *Microfluidics and Nanofluidics* 10 (2011) 685-690 (IF= 3.507, **prim-autor, zona rosie**).
76. M.M. Dzagli, V. Canpean, **M. Iosin**, M. A. Mohou, S. Astilean, Study of the interaction between CdSe/ZnS core-shell quantum dots and bovine serum albumin by spectroscopic techniques, *Journal of Photochemistry and Photobiology A: Chemistry* 215 (2010) 118-122 (IF=2.243, **autor corespondent**).
77. **M Iosin**, O. Stephan, S. Astilean, A. Dupperay, P.L Baldeck, Microstructuration of protein matrices by laser-induced photochemistry, *Journal of Optoelectronics and Advanced Materials*, 9 (2007) 716-720 (IF=0.577, **prim-autor**).
78. A. Bensouici, M. Ayadi, **M. Iosin**, G. Damian, J.P. Plaza, S. Astilean, M. Sebais, Chemical Decomposition of CdTe and CdBr₂ Dopants in KBr, 15th International Conference on Transparent Optical Networks (ICTON) 2013, ISBN:978-1-4799-0683-3
79. M. Iliut, **M. Focsan**, S. Astilean, Monitoring the Effects of Temperature on Milk by Fluorescence Spectroscopy of Riboflavin and Vitamin A, *Studia UBB Physica, LVI*, 1 (2011) 17.
80. P. Baldeck, T. Scheul, J. Bosson, **M. Iosin**, C. L. Lin, G. Vitrant, O. Stephan, Advances in two-photon microstructuration of polymers, proteins and metallic materials with Q-switched microlasers, *Nonlinear Optics Quantum Optics*, 40 (2010) 193-197.

- 81.** S. Suarasan, **M. Focsan**, D. Maniu, S. Astilean, Synthesis and stabilization of gold nanoparticles by gelatin biopolymer, *Studia UBB Physica* 56 (2011) 133.
- 82.** **M. Iosin**, F. Toderas, P. Baldeck, S Astilean, Investigation of the binding constant of biocompatible gold nanoparticles to Bovine Serum Albumine using fluorescence and LSPR spectroscopy, *New applications of micro and nanotechnologies*, Editura Academiei Romane (2009) 235-241, ISBN 978-973-27-1576 (**prim-autor**).
- 83.** P.L. Baldeck, J. Bosson, **M. Iosin**, C.-L. Lin, N. Tosa, L. Vurtz, G. Vitrant and O. Stephan, 3D Laser Micro-Structuration of Polymers, Metals and Biomaterials by Two-Photon Induced Photochemistry, *Trends in Optics and Photonics* (2009) 3-8 ISBN 978-81-908188-0-3.
- 84.** **M. Iosin**, S. Astilean, O. Stephan, PL Baldeck, Cross-linked protein nanostructures fabricated by two-photon laser induced photochemistry, *Progress in nanoscience and nanotechnologies*, Editura Academiei Romane (2007) 102, ISBN 978-973-27-1576-5 (**prim-autor**).
- 85.** F. Toderaș, **M. Iosin**, M. Baia and S. Aștilean, Probing the interaction of bovine serum albumin (BSA) and gold nanoparticle, *Progress in nanoscience and nanotechnologies*, Editura Academiei Romane (2007) 215-221, ISBN 978-973-27-1576-5.

► **Cărți publicate:** *Laser Microfabrication of Proteins for Biological Applications*, Monica Focsan, Editura Alma Mater, 2013, ISBN 978-606-504-164-6

► **Capitole de carte:**

1. M. Potara, **M. Focsan**, A.M. Craciun, I. Botiz and S. Astilean, *Polymer-coated plasmonic nanoparticles for environmental remediation: synthesis, functionalization and properties*, chapter in *New Polymer Nanocomposites for Environmental Remediation*, eds. C. M. Hussain and M. Ajay, Elsevier, eds. C. M. Hussain and M. Ajay, *Elsevier*, 2018, Pages 361-387, ISBN:9780128110331 **All authors contributed equally to this work.**
2. M. Potara, A. Campu, S. D. Maniu, M. Focsan, I. Botiz, S. Astilean, Advanced nanostructures for microbial contaminants detection by means of spectroscopic methods book chapter in *Advanced Nanostructures for Environmental Health*, editors L. Baia, Z. Pap, M. Baia and K. Hernadi, Elsevier Inc (2020) 347 - 384, ISBN: 978-0-12-815882-1. **All authors contributed equally to this work.**

► **Cereri de brevet-Brevete obținute:**

1. A. Campu, I. Muresan, M. Potara, S. Astilean, S. Cainap, **M. Focsan**, Efficient plasmonic nanosensor based on gold nanobipyramids for the multimodal detection of the cardiac troponin I biomarker, O.S.I.M., Romania, A 00293

2. **M. Focsan**, A. Campu, A.M. Craciun, S. Astilean, Microfluidic detection device fabricated through the integration of calligraphed plasmonic paper in polydimethylsiloxane, O.S.I.M., Romania, RO 135233 (A0)
3. **M. Focsan**, A. Campu, S. Astilean, T. Murariu, I.Turcu, Plasmonic microfluidic device based on gold bipyramidal nanoparticles, O.S.I.M., Romania, RO 133447 (B1) - granted

CS I habil dr Monica Focsan

Data 22.06.2022