

Dr. Lucia Monica VECA

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Studii Academice

- 2009** *Doctor in Chimie*, Universitatea Clemson, **Clemson, USA**
Domeniul: Nanomateriale Carbonice
- 2001** *Master Franco - Roman in Stiinta si Tehnologia Materialelor*, Universitatea din Pitesti, **Pitesti.**
- 1999** *Licenta in Chimie*, Universitatea Babes-Bolyai, Facultatea de Chimie si Inginerie Chimica, Cluj Napoca

Experienta Profesionala

- 2012 –prezent** *Cercetator Stiintific gradul I- CS I*, Institutul National de Cercetare-Dezvoltare pentru Microtehnologie IMT-Bucuresti, **Laboratorul de Nanotehnologie Moleculara.**
- 2011 - 2012** *Cercetator Stiintific gradul III - CS III*, Institutul National de Cercetare-Dezvoltare pentru Microtehnologie IMT-Bucuresti, **Laboratorul de Nanotehnologie Moleculara.**
- 2010 – 2011** *Chimist*, Institutul National de Cercetare-Dezvoltare pentru Microtehnologie IMT-Bucuresti, **Laboratorul de Nanotehnologie Moleculara.**
- 2005-2009** *Asistent de Cercetare*, Universitatea Clemson, **Departamentul Chimie**
- 2003-2005** *Asistent de Cercetare*, Universitatea Clemson, **Departamentul Stiinta si Ingineria Materialelor**
- 2002-2003** *Chimist*, Institutul National de Cercetare – Dezvoltare pentru Chimie si Petrochimie ICECHIM Bucuresti, **Departamentul Detergenti**

Premii - Stagii de Cercetare

- 2009** Outstanding Graduate Researcher Award, Chemistry Department, **Universitatea Clemson, USA**
- 2008** Chemistry Department Graduate Research Incentive Program Award, **Universitatea Clemson, USA** for one of the most successful and productive student researchers.
- 2001** Stagiul de cercetare, SPMS Laboratoire Structures, Proprietes et Modelisation des Solides, **Ecole Centrale Paris, Franta** (4 months).

Granturi de Cercetare

- 2020 - 2022** “Laboratory validation of white electroluminescent carbon dot-based light emitting diodes” (PN-III-P2-2.1-PED-2019-0841) – **director de proiect**
- 2019 - 2020** “Carbon quantum dots/graphene hybrids with broad photoresponsivity – BANDPASS” (H2020 - ATTRACT competition) – **director de proiect**
- 2017 - 2018** “Dye Sensitized Solar Cells with Integrated 3D Graphene Structures” (PN-III-P2-2.1-PED-2016-1159) – **responsabil partener**
- 2012 – 2016** “Carbon-quantum dots: exploring a new concept for the next generation optoelectronic devices” (PNII-ID-PCCE-2011-2-0069) – **director de proiect**
- 2016 - 2017** “Nanocarbon films and nanostructures – experimental and applicative investigations” Core Programme – **responsabil project**
- 2010 - 2013** “Synthesis and molecular organization of functional nanomaterials” POSDRU/89/1.5/S/63700 – **cercetator postdoctoral**
- 2005 - 2008** “Flexible fabrics with high thermal conductivity for advanced spacesuits” NASA Langley Research Center – **membru echipa Clemson**

Lucrari Invitate

- 2017** MRS Fall Meeting, Boston, **USA**
“Carbon Quantum Dots Contribution to Optoelectronic Devices”
- 2018** 7th Annual World Congress of Advanced Materials, Xiamen, **China**
“Graphene Nanostructures Perspectives for Optoelectronic Applications”
- 2020** 4th International Symposium on Nanoparticles, Nanomaterials and Applications, Caparica, **Portugal**
“Photoresponsivity in carbon – dots/graphene hybrids”

Indicatori Bibliometrici

- Autor si co-autor a 39 publicatii in reviste Q1 – Q2 (*Adv. Mater*, *Chem. Commun*, *ACS Nano*, *JACS*, *RSC Adv.*, *Chem. Phys. Lett.*) si 4 capitole in carti in domeniul nanomaterialelor carbonice.
- Citari peste 7400 (web of science) si peste 9300 (Google Academic)
- Hirsh index = 22 (web of science) si 24 (Google Academic)
- Membru comisii de doctorat, Facultatea de Fizica, Universitatea din Bucuresti (4 teze)
- Recenzor – Reviste Q1- Q2 in stiinta materialelor, domeniul nanomaterialelor & nanotehnologiei din American Chemical Society, Royal Society of Chemistry, Elsevier, si Springer.
- Brevet: *US 9,067,794 B1* Highly Thermal Conductive Nanocomposites, Ya-Ping Sun, John Connell, **L. Monica Veca**.

Afilieri Profesionale

- 2004-2005** The Minerals, Metals & Materials Society
2005-2010 American Chemical Society

Capitole

1. Wang, W.; Lu, F.; **Veca, L. M.**; Meziani, M. J.; Wang, X.; Cao, L.; Gu, L.; Sun, Y.-P. Carbon Nanotubes and Nanocomposites for Electrical and Thermal Applications. In *Encyclopedia of Inorganic Chemistry, Nanomaterials: Inorganic and Bioinorganic Perspectives*, C. M. Lukehart and R. A. Scott Eds., John Wiley & Sons, Chichester, UK, **2008**, 169-188.
2. Lin, Y.; Li, H.; Gu, L.; Luo, P. G.; **Veca, L. M.**; Wang, H.; Sun, Y.-P. Bioapplications of Carbon Nanotubes. In *Chemistry of Carbon Nanotubes*, V. Basiuk Ed., Am. Sci. Publishers, **2008**, Vol. 2, Chapter 11.
3. Sun, Y.-P.; Lu, F. S.; Wang, X.; Cao, L.; Lin, Y.; Meziani, M. J.; Wang, H. F.; Luo, P. G.; Zhou, B.; Harruff, B. A.; Wang, W.; **Veca, L. M.**; Zhang, P. Y.; Xie, S-Y.; Yang, H. Photoluminescent Carbon Nanomaterials: Properties and Potential Applications. In *NanoScience in Biomedicine*, Shi, D., Ed., Springer-Verlag and Tsinghua University Press, **2009**, Chapter 6.
4. **Veca, L. M.**; Wang, W.; Lin, Y.; Meziani, M. J.; Tian, L.; Connell, J. W.; Ghose, S.; Kong, C. Y.; Sun, Y.-P. Thermal Conductive Materials Based on Carbon Nanotubes and Graphene Nanosheets. In *Handbook on Carbon Nano Materials: Fundamentals and Applications*, Kadish, K. M. and D'Souza, F. Eds., World Scientific Publishing Co Pte Ltd, **2011**, Chapter 22.

Publicatii (selectie)

1. Mihai, EM.; Mihalache, I.; Istrate, AI.; Banciu, CA.; Romanitan, C.; Brincoveanu, O.; Tanasa, E.; Banu, A.; **Veca, LM.*** „Self-Sustained Three-Dimensional Macroporous TiO₂-Graphene Photocatalyst for Sunlight Decolorization of Methyl Orange” *Nanomaterials* **2022**, 12, 4393.
2. Crisan, A.P.; Craciun, A-M.; Mihalache, I.; Focsan, M.; Socaci, C.; Maniu, D.; Astilean, S.*; **Veca, LM.***; Terec, A.* „Surface Passivation of Carbon Nanoparticles with 1,2-Phenylenediamine towards Photoluminescent Carbon Dots” *Rev. Roum. Chim.* **2020**, 65, 559-566 (*Dedicated to Professor Ion Grosu on the occasion of his 65th anniversary*)
3. Cao, L.; Fernando, K. A. S*.; Liang, W.; Seilkop, A.; **Veca, L. M.*** ; Sun, Y-P*; Bunker, C.E.* „Carbon dots for energy conversion applications” *J. Appl. Phys.* **2019**, 125, 220903 (*Perspective article & Editor's Pick*)
4. **Veca, LM***; Nastase, F.; Banciu, C.; Popescu, M.; Romanitan, C; Lungulescu, M.; Popa, R „Synthesis of macroporous ZnO-graphene hybrid monoliths with potential for functional electrodes” *Diamond and Related Materials* **2018**, 87, 70-77.
5. Craciun, A.M.; Diac, A; Focsan, M; Socaci, C; Magyari, K.; Maniu, D; Mihalache, I.; **Veca, LM***; Astilean, S*; Terec, A* „Surface passivation of carbon nanoparticles with p-phenylenediamine towards photoluminescent carbon dots” *RSC Adv.* **2016**, 6, 56944-56951.
6. Diac, A.; Focsan, M.; Socaci, C.; Gabudean, A.; Farcau, C.; Maniu, D.; Vasile, E.; Terec, A*;
Veca, L.M.*; Astilean, S.* “Covalent conjugation of carbon dots with Rhodamine B and assessment of their photophysical properties” *RSC Adv.* **2015**, 5, 77662-77669.

7. Rednic, M.I.; Lu, Z.M.; Wang, P.; LeCroy, G.E.; Yang, F.; Liu, Y.; Qian, H.J.; Terec, A.; **Veca, L.M.**; Sun, Y.P.* “Fluorescent carbon ‘quantum’ dots from thermochemical functionalization of carbon nanoparticles” *Chem. Phys. Lett.* **2015**, *639*, 109-113.
8. **Veca, L.M.**.* Diac, A.; Mihalache, I.; Wang, P.; LeCroy, G.E.; Pavelescu, E.M.; Gavrila, R.; Vasile, E.; Terec, A.; Sun, Y.P. “Electroluminescence of carbon ‘quantum’ dots – From materials to devices” *Chem. Phys. Lett.* **2014**, *613*, 40-44.
9. LeCroy, G. E.; Sonkar, S. K.; Yang, F.; **Veca, L. M.***; Wang, P.; Tackett, K. N.; Yu, J.J.; Vasile, E.; Qian, H.; Liu, Y.; Luo, P.; Sun, Y.-P.*” Toward structurally defined carbon dots ultracompact fluorescent probes.” *ACS Nano* **2014**, *8*, 4522-4529.
10. Song, W.-L.; **Veca, L. M.**; Kong, C. Y.; Ghose, S.; Connell, J.W.; Wang, P.; Cao, L.; Lin, Y.; Mezziani, M. J.; Qian, H.; LeCroy, G. E.; Sun, Y.-P. “Polymeric nanocomposites with graphene sheets - Materials and device for superior thermal transport properties” *Polymer* **2012**, *53*, 3910.
11. Song, W.-L.; **Veca, L.M.***; Anderson, A.; Cao, M.-S.; Cao, L.; Sun, Y.-P.* “Light-Weight Nanocomposite Materials with Enhanced Thermal Transport Properties” *Nanotechnology Review* **2012**, *1*, 363-376
12. Song, W.-L.; Wang, W.; **Veca, L. M.**; Kong, C. Y.; Cao, M.-S.; Wang, P.; Mezziani, M. J.; Qian, H.; LeCroy, G. E.; Cao, L.; Sun, Y.-P. “Polymer/carbon nanocomposites for enhanced thermal transport properties - carbon nanotubes versus graphene sheets as nanoscale fillers” *J. Mater. Chem.* **2012**, *22*, 17133-17139.
13. Tian, L.; Anilkumar, P.; Cao, L.; Kong, C. Y.; Mezziani, M. J.; Qian, H.; **Veca, L. M.**; Thorne, T. J.; Tackett, K. N.; Edwards, T.; Sun, Y.-P. “Graphene Oxides Dispersing and Hosting Graphene Sheets for Unique Nanocomposite Materials” *ACS NANO* **2011**, *5*, 3052-3058.
14. **Veca, L. M.**; Lu, F.; Mezziani, M. J.; Cao, L.; Zhang, P.; Qi, G.; Qu, L.; Shrestha, M.; Sun, Y.-P. “Polymer Functionalization and Solubilization of Carbon Nanosheets” *Chem. Commun.* **2009**, 2565-2567.
15. **Veca, L. M.**; Mezziani, M. J.; Wang, W.; Wang, X.; Lu, F.; Zhang, P.; Lin, Y.; Fee, R.; Connell, J. W.; Sun, Y.-P. “Carbon Nanosheets for Polymeric Nanocomposites with High Thermal Conductivity” *Adv. Mater.* **2009**, *21*, 2088-2092.
16. Komarneni, M.; Sand, A.; Goering, J.; Burghaus, U.; Lu, M.; **Veca, L. M.**; Sun, Y.-P. “Possible effect of carbon nanotube diameter on gas-surface interactions - The case of benzene, water, and n-pentane adsorption on SWCNTs at ultra-high vacuum conditions” *Chem. Phys. Lett.* **2009**, *476*, 227-231.
17. Cheng, J.; Chan, C. M.; **Veca, L. M.**; Poon, W. L.; Chan, P. K.; Qu, L.; Sun, Y.-P.; Cheng, S. H. “Acute and Long-Term Effects after Single Loading of Functionalized Multi-Walled Carbon Nanotubes into Zebrafish (*Danio rerio*)” *Toxicol. Appl. Pharmacol.* **2009**, *235*, 216-225.
18. Wang, W.; Fernando, K. A. S.; Lin, Y.; Mezziani, M. J.; **Veca, L. M.**; Cao, L.; Zhang, P.; Kimani, M. M.; Sun, Y.-P. “Metallic Single-Walled Carbon Nanotubes for Conductive Nanocomposites” *J. Am. Chem. Soc.* **2008**, *130*, 1415-1419.

19. Cheng, J.; Fernando, K. A. S.; **Veca, L. M.**; Sun, Y.-P.; Lamond, A. I.; Lam, Y. W. and Cheng, S. H. "Reversible Accumulation of PEGylated Single-Walled Carbon Nanotubes in the Mammalian Nucleus" *ACS NANO* **2008**, 2, 2085–2094.
20. Lu, F.; Gu, L.; Meziani, M. J.; Wang, X.; Luo, P. G.; **Veca, L. M.**; Cao, L.; Sun, Y.-P. "Advances in Bioapplications of Carbon Nanotubes" *Adv. Mater.* **2008**, 20, 1-14.
21. Gu, L.; Luo, P. G.; Wang, H.; Meziani, M. J.; Lin, Y.; **Veca, L. M.**; Cao, L.; Lu, F.; Wang, X.; Quinn, R. A.; Wang, W.; Zhang, P.; Lacher, S.; Sun, Y.-P. "Single-Walled Carbon Nanotube as a Unique Scaffold for the Multivalent Display of Sugars" *Biomacromolecules* **2008**, 9, 2408-2418.
22. Sun, Y.-P.; Wang, X.; Lu, F.; Cao, L.; Meziani, M. J.; Luo, P. G.; Gu, L. and **Veca, L. M.** "Doped Carbon Nanoparticles as a New Platform for Highly Photoluminescent Dots" *J. Phys. Chem. C.* **2008**, 112, 18295.
23. Cao, L.; Wang, X.; Meziani, M. J.; Lu, F.; Wang, H.; Luo, P. G.; Lin, Y.; Harruff, B. A.; **Veca, L. M.**; Murray, D.; Xie, S.-Y.; Sun, Y.-P. "Carbon Dots for Multiphoton Bioimaging" *J. Am. Chem. Soc.* **2007**, 129, 11318- 11319.
24. Fernando, K. S.; Lin, Y.; Wang, W.; Cao, L.; Meziani, M. J.; Wang, X.; **Veca, L. M.**; Zhang, P.; Quinn, R. A.; Allard, L. F.; Sun, Y.-P. "Diameter-Selective Fractionation of HiPco Single-Walled Carbon Nanotubes in Repeated Functionalization Reactions" *J. Phys. Chem. C* **2007**, 111, 10254.
25. Lin, Y.; Elkin, T.; Taylor, S.; Gu, L.; Chen, B.; **Veca, L. M.**; Zhou, B.; Yang, H.; Brown, J.; Joseph, R.; Jones, E.; Jiang, X.; Sun, Y.-P. "Preparation, Characterization, and Evaluation of Immuno Carbon Nanotubes" *Microchimica Acta* **2006**, 152, 249-254.
26. Zhou, B.; Lin, Y.; Hill, D. E.; Wang, W.; **Veca, L. M.**; Qu, L.; Pathak, P.; Meziani, M. J.; Diaz, J.; Connell, J. W.; Watson, K. A.; Allard, L. F.; Sun, Y.-P. "Polymeric Nanocomposite Films from Functionalized vs Suspended Single-Walled Carbon Nanotubes" *Polymer* **2006**, 47, 5323-5329.
27. Kose, M. E.; Harruff, B. A.; Lin, Y.; **Veca, L. M.**; Lu, F.; Sun, Y.-P. "Efficient Quenching of Photoluminescence from Functionalized Single-Walled Carbon Nanotubes by Nitroaromatic Molecules" *J. Phys. Chem. B* **2006**, 110, 14032-14034.
28. Sun, Y.-P.; Zhou, B.; Lin, Y.; Wang, W.; Fernando, K. A. S.; Pathak, P.; Meziani, M. J.; Harruff, B. A.; Wang, X.; Wang, H.; Luo, P. G.; Yang, H.; Kose, M. E.; Chen, B.; **Veca, L. M.**; Xie, S.-Y. "Quantum-Sized Carbon Dots for Bright and Colorful Photoluminescence" *J. Am. Chem. Soc.* **2006**, 128, 7756- 7757.
29. Zhou, B.; Lin, Y.; **Veca, L. M.**; Fernando, K. A. S.; Harruff, B. A.; Sun, Y.-P. "Luminescence Polarization Spectroscopy Study of Functionalized Carbon Nanotubes in a Polymeric Matrix" *J. Phys. Chem. B* **2006**, 110, 3001-3006.
30. Qu, L.; **Veca, L. M.**; Lin, Y.; Kitaygorodskiy, A.; Chen, B.; McCall, A. M.; Connell, J. W.; Sun, Y.-P. "Soluble Nylon-Functionalized Carbon Nanotubes from Anionic Ring-Opening Polymerization from Nanotube Surface" *Macromolecules* **2005**, 38, 10328-10331.

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