***Lucia Monica VECA,PhD***
*Laboratory for Molecular Nanotechnology*
*National Institute for Research and Development in Microtechnologies IMT-Bucharest*
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## *EDUCATION*

***2009*** ***Doctor of Philosophy*** in Chemistry, Clemson University, **Clemson, USA**
Field of interest: Nanomaterials

***2001*** ***French-Romanian Master*** in Materials Science and Engineering, University of Pitesti, **Pitesti.**

***1999*** ***Bachelor of Science*** in Chemistry**,** Babes-Bolyai University, Faculty of Chemistry and Chemical Engineering**, Cluj Napoca**

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## *RESEARCH POSITIONS*

**2012 –present** *Senior Scientist (CS I)***,** National Institute for Research and Development in Microtechnologies IMT Bucharest, **Laboratory for Molecular Nanotechnology**.

**2011 - 2012** *Scientist (CS III)***,** National Institute for Research and Development in Microtechnologies IMT Bucharest, **Laboratory for Molecular Nanotechnology**.

**2010 – 2011** *Chemist,* National Institute for Research and Development in Microtechnologies IMT Bucharest, **Laboratory for Molecular Nanotechnology**.

**2005-2009** *Graduate Research Assistant,* Clemson University, **Chemistry Department**

**2003-2005** G*raduate Research Assistant,* Clemson University, **School of Materials Science and Engineering**

**2002-2003** *Chemist,* The National Institute for Research & Development in Chemistry and Petrochemistry, ICECHIM Bucharest, **Department of Chemical and Surfactants Technology**

## *AWARDS*

***2009*** Outstanding Graduate Researcher Award, Chemistry Department, **Clemson University**

***2008*** Chemistry Department Graduate Research Incentive Program Award, **Clemson University** for one of the most successful and productive student researchers.

***2001*** Research Scholarship, SPMS Laboratoire Stuctures, Proprietes et Modelisation des Solides, **Ecole Centrale Paris, France** (4 months).

## *RESEARCH GRANTS*

**2019 - 2020** *"Carbon quantum dots/graphene hybrids with broad photoresponsivity – BANDPASS"* (H2020 - ATTRACT competition) **- *principal investigator***

**2017 - 2018** *"Dye Sensitized Solar Cells with Integrated 3D Graphene Structures"* (PN-III-P2-2.1-PED-2016-1159) **- *partner***

**2012 – 2016** *"Carbon-quantum dots: exploring a new concept for the next generation optoelectronic devices" (*PNII-ID-PCCE-2011-2-0069*)* **– *principal investigator***

**2016 - 2017** *"Nanocarbon films and nanostructures – experimental and applicative investigations" Core Programme –* ***project leader***

**2010 - 2013** *"Synthesis and molecular organization of functional nanomaterials" POSDRU/89/1.5/S/63700–* ***postdoctoral researcher***

**2005 - 2008** *"Flexible fabrics with high thermal conductivity for advanced spacesuits" NASA Langley Research Center –* ***Clemson's team member***

## *INVITED LECTURES*

**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"*

## *ACHIEVEMENTS*

Author and co-author of 38 peer reviewed journal publications, more than 4000 citations.
Hirsh index = 19
Author and co-author of 4 book chapters on carbonaceous nanomaterials.
Patent: *US 9,067,794 B1* Highly Thermal Conductive Nanocomposites,
Ya-Ping Sun, John Connell, **L. Monica Veca**.

## *PROFESIONAL AFFILIATIONS*

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

## *BOOK CHAPTERS*

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-Verlang 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.

***PUBLICATIONS (selection)***

1. **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.

2. 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-phenelynediamine towards photoluminescent carbon dots" *RSC Adv.* **2016**, *6*, 56944-56951.

3. 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.

4. 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.

5. **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.

6. Mihalache, I.; **Veca, L.M.**; Kusko,M.; Dragoman, D.* - „Memory effect in carbon quantum dot - $PEG_{1500N}$ composites" *Curr. Appl. Phys.* **2014,** *14*, 1625 - 1632**.**

7. 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.

8. Song, W.-L.; **Veca, L. M.**; Kong, C. Y.; Ghose, S.; Connell, J.W.; Wang, P.; Cao, L.; Lin, Y.; Meziani, 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.

9. 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

10. Song, W.-L.; Wang, W.; **Veca, L. M.**; Kong, C. Y.; Cao, M.-S.; Wang, P.; Meziani, 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.

11. Tian, L.; Anilkumar, P.; Cao, L.; Kong, C. Y.; Meziani, M. J.; Q.ian, 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.

12. **Veca, L. M.**; Lu, F.; Meziani, 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.

13. **Veca, L. M.**; Meziani, 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.

14. 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.

15. 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.

16. Wang, W.; Fernando, K. A. S.; Lin, Y.; Meziani, 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.

17. 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.

18. 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.

19. 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.

20. 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.

21. 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.

22. 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.

23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.