

CURRICULUM VITAE - Borislav Vasić

CONTACT INFORMATION	Graphene Laboratory Center for Solid State Physics and New Materials Institute of Physics Belgrade Pregrevica 118 11080 Belgrade, Serbia	<i>Tel:</i> +381 11 37 13 050 <i>Fax:</i> +381 11 31 60 531 <i>E-mail:</i> bvasic@ipb.ac.rs
EDUCATION	<ul style="list-style-type: none">● 2012 PhD in Nanoelectronics and Photonics, Faculty of Electrical Engineering, University of Belgrade Thesis: Modeling of graded photonic and plasmonic crystals in metamaterial regime Thesis advisors: dr Jelena Radovanović and dr Radoš Gajić● 2005 Dipl. Ing. in Electrical Engineering, Faculty of Technical Sciences, University of Novi Sad Section: Microcomputer electronics, GPA 9.62 (out of 10) Thesis: Analysis of nano-CMOS components● 2000 High School (Gymnasium), Svilajnac, Serbia	
PROFESSIONAL POSITIONS	<ul style="list-style-type: none">● (2019-present) Research Associate Professor● (2013-2019) Research Assistant Professor● (2010-2013) Research Associate	
RESEARCH INTERESTS	<ul style="list-style-type: none">● materials and surface science:<ul style="list-style-type: none">- two-dimensional materials, thin films of functional metal-oxides, semiconductor nanocrystals, nanoparticles, cells and biomembranes- imaging, characterization and manipulation at nanoscale using scanning probe microscopy (SPM) based techniques● photonics:<ul style="list-style-type: none">- metamaterials and metasurfaces, plasmonic structures- tunable structures, switches and modulators- refractive index sensors	
RESEARCH EXPERIENCE AND SKILLS	<ul style="list-style-type: none">● SPM system NTEGRA from NT-MDT (Atomic Force Microscopy (AFM), Kelvin Probe Force Microscopy (KPFM), Electric Force Microscopy (EFM), Conductive AFM (C-AFM), photo-assisted KPFM, photoconductive AFM (PC-AFM), Piezoresponse Force Microscopy (PFM), Friction Force Microscopy (FFM), Force Modulation Microscopy (FMM), AFM based lithography, AFM based nanomanipulation)	

- RETICOLO, the electromagnetic solver based on the rigorous coupled wave analysis
 - COMSOL Multiphysics, the electromagnetic solver based on the finite element method
- EMPLOYMENT
- **(2007-present)** Employed at the Center for Solid State Physics and New Materials of the Institute of Physics Belgrade, Serbia
 - **(2013)** Postdoctoral studies at Johannes Kepler University, Linz, Austria, at the Nanophotonics group of professor Thomas Klar
- NATIONAL PROJECTS
- **(2020-present)** "Nanometer thin photovoltaics based on plasmonically enhanced van der Waals heterostructures" (PV-Waals), Science Fund of the Republic of Serbia, PROMIS project (participation)
 - **(2020-present)** "Strain Effects in Iron Chalcogenide Superconductors" (StrainedFeSC), Science Fund of the Republic of Serbia, PROMIS project (participation)
 - **(2011-2019)** Nanostructured multifunctional materials and nanocomposites, Serbian Ministry of Education, Science and Technological Development, National research project III45018 (participation)
 - **(2011-2019)** "Ordered Nano-Structures and New Materials in Photonics", Serbian Ministry of Education, Science and Technological Development, National research project OI171005 (participation)
- EUROPEAN PROJECTS
- **(2009-2012)** FP7 project of the European Commission "NIM-NIL: Negative index materials by nanoimprint lithography" (participation)
 - **(2007-2010)** FP7 project of the European Commission "NanoCharm: Multifunctional Nanomaterials Characterization Exploiting EllipsoMetry and Polarimetry" (participation)
- BILATERAL PROJECTS
- **(2018-2019)** Bilateral project between the Republic of Serbia and the Republic of Austria: "Nanoscale electrical properties of van der Waals heterostructures composed of two-dimensional materials and organic semiconductors" (project leader from Serbian side)
 - **(2016-2017)** Bilateral project between the Republic of Serbia and the Republic of Austria: "Two-dimensional materials as templates for the growth of organic semiconductors" (project leader from Serbian side)
 - **(2015-2016)** Bilateral project between the Republic of Serbia and the Republic of Germany: "Femtosecond Surface Plasmon Dynamics at the NANOscales" (participation)

- **(2014-2015)** Bilateral project between the Republic of Serbia and the Republic of Italy: "LC-NANOPLASM" (participation)
 - **(2012-2013)** Bilateral project between the Republic of Serbia and the Kingdom of Spain: "Infrared spectroscopy of nanostructured graphene" (participation)
- COST ACTIONS
- **(2014-2018)** Understanding and Controlling Nano and Mesoscale Friction (COST action MP1303)
- COLLABORATION WITH OTHER INSTITUTIONS
- SPM group of Professor Christian Teichert at the Institute of Physics, Montanuniversität Leoben, Leoben, Austria
 - dr Dimitrios C. Zografopoulos at CNR - IMM - Institute for Microelectronics and Microsystems - Rome, Italy
 - Professor Alberto Pomar at Institut de Ciència de Materials de Barcelona, ICMAB-CSIC, Barcelona, Spain
- AWARDS
- 12-month ITO scholarship by the Joint Japan-Serbia Center for the Promotion of Science and Technology of the University of Belgrade (2020/2021)
 - Award of the foundation "Pokreni se za nauku" in 2018 for achieved scientific results in previous work
 - Award of the foundation "Djoka Vlaković" in 2018 for the best scientific paper of young researchers in technical and technological sciences
 - Student award 2013 of the Institute of Physics in Belgrade for the best PhD thesis
- REFEREE SERVICE
- Nanoscale, Nanotechnology, Carbon, ACS Applied Materials Interfaces, Journal of Materials Chemistry C, IEEE Transactions on Nanotechnology, Applied Physics Letters, Optics Express, Optics Letters, Journal of Optical Society of America B, Applied Optics, Journal of Modern Optics, Photonics Journal IEEE, Chinese Optics Letters
- LANGUAGES
- Serbian - mother tongue
 - English
- CITATIONS
- Google Scholar, December 2020: 61 articles in international peer-reviewed journals, 1269 citations, h-index=18

2020

1. **B. Vasić**, S. Aškračić, M. M. Jakovljević and M. Artemyev, Local electrical properties and charging/discharging of CdSe/CdS core-shell nanoplatelets, *Appl. Surf. Sci.* **513**, 145822 (2020).
2. **B. Vasić**, U. Ralević, K. Cvetanović-Zobenica, M. M. Smiljanić, R. Gajić, M. Spasenović and S. Vollebregt, Low-friction, wear-resistant, and electrically homogeneous multilayer graphene grown by chemical vapor deposition on molybdenum, *Appl. Surf. Sci.* **509**, 144792 (2020).
3. **B. Vasić**, G. Isić, R. Beccherelli and D. C. Zografopoulos, Tunable Beam Steering at Terahertz Frequencies Using Reconfigurable, *IEEE J. Sel. Top. Quantum Electron.* **26**, 7701609 (2020).
4. I. R. Milošević, **B. Vasić**, A. Matković, J. Vujić, S. Aškračić, M. Kratzer, T. Griesser, C. Teichert and R. Gajić, Single-step fabrication and work function engineering of Langmuir-Blodgett assembled few-layer graphene films with Li and Au salts, *Sci. Rep.* **10**, 8476 (2020).
5. V. Fuentes, **B. Vasić**, Z. Konstantinović, B. Martínez, Ll. Balcells and A. Pomar, Resistive switching in Strontium iridate based thin films, *J. Magn. Mater.* **501**, 166419 (2020).
6. M. J. Vujković, M. Etinski, **B. Vasić**, B. Kuzmanović, D. Bajuk-Bogdanović, R. Dominko, S. Mentus, Polyaniline as a charge storage material in an aqueous aluminum-based electrolyte: Can aluminum ions play the role of protons?, *J. Power Sources* **482**, 228937 (2020).
7. M. Miletić, S. Aškračić, J. Rüger, **B. Vasić**, L. Korićanac, A. S. Mondol, J. Dellith, J. Popp, I. W. Schie and Z. Dohčević-Mitrović, Combined Raman and AFM detection of changes in HeLa cervical cancer cells induced by CeO₂ nanoparticles: molecular and morphological perspectives, *Analyst* **145**, 3983 (2020).
8. M. M. Jakovljević, S. Aškračić, G. Isić, **B. Vasić**, R. Gajić and M. Artemyev, Pseudo-refractive index and excitonic features of single layer CdSe/CdS core-shell nanoplatelet films, *Nanotechnology* **31**, 435708 (2020).
9. G. Isić, D. C. Zografopoulos, D. B. Stojanović, **B. Vasić** and M. R. Belić, Beam Steering Efficiency in Resonant Reflective Metasurfaces, *IEEE J. Sel. Top. Quantum Electron.* **27**, 1 (2020).

2019

1. **B. Vasić**, Z. Konstantinović, E. Pannunzio-Miner, S. Valencia, R. Abrudan, R. Gajić, A. Pomar, Nanoscale mechanical control of surface electrical properties of manganite films with magnetic nanoparticles, *Nanoscale Adv.* **1**, 1763 (2019).

2. V. Fuentes, **B. Vasić**, Z. Konstantinović, B. Martínez, Ll. Balcells and A. Pomar, Resistive Switching in Semimetallic SrIrO₃ Thin Films, *ACS App. Electron. Mater.* **1**, 1981 (2019).
3. G. Isić, G. Sinatkas, D. C. Zografopoulos, **B. Vasić**, A. Ferraro, R. Beccherelli, E. E. Kriezis and M. R. Belić, Electrically tunable metalsemiconductor metal terahertz metasurface modulators, *IEEE J. Sel. Top. Quantum Electron.* **25**, 8500108 (2019).
4. V. Čelebonović, J. Pešić, R. Gajić, **B. Vasić**, and A. Matković, Selected transport, vibrational, and mechanical properties of low-dimensional systems under strain, *J. Appl. Phys.* **125**, 154301 (2019).
5. B. Babić, B. Hadžić, I. Kuryliszyn-Kudelska, N. Paunović, **B. Vasić**, W. D. Dobrowolski, M. Romčević, J. Trajić and N. Romčević, Far-infrared spectroscopy of laser power modified MnO nanoparticles, *Optoelectron. Adv. Mater. Rapid Commun.* **13**, 376 (2019).

2018

1. **B. Vasić**, I. Stanković, A. Matković, M. Kratzer, C. Ganser, R. Gajić and C. Teichert, Molecules on rails: friction anisotropy and preferential sliding directions of organic nanocrystallites on two-dimensional materials, *Nanoscale* **10**, 18835 (2018).
2. B. Hadžić, **B. Vasić**, B. Matovi, I. KuryliszynKudelska, W. Dobrowolski, M. Romčević and N. Romčević, Influence of laserinduced heating on MnO nanoparticles, *J. Raman Spectrosc.* **49**, 817 (2018).
3. J. Mitrić, J. Križan, J. Trajić, G. Križan, M. Romčević, N Paunović, **B. Vasić** and N. Romčević, Structural properties of Eu³⁺ doped Gd₂Zr₂O₇ nanopowders: Far-infrared spectroscopy, *Opt. Mater.* **75**, 662 (2018).
4. J. Mitrić, N. Paunović, M. Mitrić, **B. Vasić**, U. Ralević, J. Trajić, M. Romčević, W. D. Dobrowolski, I. S. Yahia and N. Romčević, Surface optical phononPlasmon interaction in nanodimensional CdTe thin films, *Physica E Low Dimens. Syst. Nanostruct.* **104**, 64 (2018).

2017

1. **B. Vasić**, A. Matkovi, U. Ralević, M. Belić and R. Gajić, Nanoscale wear of graphene and wear protection by graphene, *Carbon* **120**, 137 (2017).
2. **B. Vasić**, A. Matkovi and R. Gajić, Phase imaging and nanoscale energy dissipation of supported graphene using amplitude modulation atomic force microscopy, *Nanotechnology* **28**, 465708 (2017).
3. **B. Vasić** and R. Gajić, Optical modulation based on tunable light absorption and amplification in metasurfaces coupled with gain medium, *Opt. Lett.* **42**, 2181 (2017).

4. **B. Vasić**, D. C. Zografopoulos, G. Isić, R. Beccherelli and R. Gajić, Electrically tunable terahertz polarization converter based on metal-isolator-metal metamaterials infiltrated with liquid crystals, *Nanotechnology* **28**, 124002 (2017).
5. B. Gaković, G. D. Tsibidis, E. Skoulas, S. M. Petrović, **B. Vasić**, E. Stratakis, Partial ablation of Ti/Al nano-layer thin film by single femtosecond laser pulse, *J. Appl. Phys.* **122**, 223106 (2017).
6. G. Križan, M. Gilić, J. L. Ristić-Djurović, J. Trajić, M. Romčević, J. Križan, B. Hadžić, **B. Vasić**, N. Romčević, Raman spectroscopy and electron-phonon coupling in Eu^{3+} doped $\text{Gd}_2\text{Zr}_2\text{O}_7$ nanopowders, *Opt. Mater.* **73**, 541 (2017).

2016

1. **B. Vasić**, A. Matković, R. Gajić, and I. Stanković Wear properties of graphene edges probed by atomic force microscopy based lateral manipulation, *Carbon* **107**, 723 (2016).
2. **B. Vasić**, A. Zurutuza and R. Gajić, Spatial variation of wear and electrical properties across wrinkles in chemical vapor deposition graphene, *Carbon* **102**, 304 (2016).
3. A. Matković, **B. Vasić**, J. Pešić, J. Prinz, I. Bald, A. R. Milosavljevic and R. Gajić, Enhanced structural stability of DNA origami nanostructures by graphene encapsulation, *New J. Phys.* **18**, 025016 (2016).
4. B. Stojadinović, **B. Vasić**, D. Stepanenko, N. Tadić, R. Gajić and Z. Dohčević-Mitrović, Variation of electric properties across the grain boundaries in BiFeO_3 film, *J. Phys. D: Appl. Phys.* **49**, 045309 (2016).
5. I. Drvenica, K. Bukara, V. Ilić, D. Mišić, **B. Vasić**, R. Gajić, V. Manojlović, D. Veljović, A. Belić and B. Bugarski, Biomembranes from slaughterhouse blood erythrocytes as prolonged release systems for dexamethasone sodium phosphate: Optimization of the preparation process and characterization, *Biotechnol. Prog.* **32**, 1046 (2016).
6. K. Bukara, I. Drvenica, V. Ilić, A. Stančić, D. Mišić, **B. Vasić**, R. Gajić, D. Vučetić and B. Bugarski, Comparative studies on osmosis based encapsulation of diclofenac sodium in porcine and outdated human erythrocyte ghost, *J. Biotechnol.* **240**, 14 (2016).
7. A. Matković, I. Milošević, M. Milićević, T. Tomašević-Ilić, J. Pešić, M. Musić, M. Spasenović, D. Jovanović, **B. Vasić**, C. Deeks, R. Panajotović, M. R. Belić and R. Gajić, Enhanced sheet conductivity of Langmuir-Blodgett assembled graphene thin films by chemical doping, *2D Mater.* **3**, 015002 (2016).

2015

1. **B. Vasić** and R. Gajić, Graphene-Covered Photonic Structures for Optical Chemical Sensing, *Phys. Rev. Appl.* **4**, 024007 (2015).
2. U. Ralević, G. Isić, **B. Vasić**, D. Gvozdić and R. Gajić, Role of waveguide geometry in graphene-based electro-absorptive optical modulators, *J. Phys. D: Appl. Phys.* **48**, 355102 (2015).
3. G. Isić, **B. Vasić**, D. C. Zografopoulos, R. Beccherelli and R. Gajić, Electrically tunable critically coupled terahertz metamaterial absorber based on nematic liquid crystals, *Phys. Rev. Appl.* **3**, 064007 (2015).
4. A. G. Kovačević, S. Petrović, B. Bokić, B. Gaković, M. T. Bokorov, **B. Vasić**, R. Gajić, M. Trtica, B. M. Jelenković, Surface nanopatterning of Al/Ti multilayer thin films and Al single layer by a low-fluence UV femtosecond laser beam, *Appl. Surf. Sci.* **326**, 91 (2015).
5. A. Matković, M. Chhikara, M. Milicević, T. U. Ralević, **B. Vasić**, D. Jovanović, M. R. Belić, G. Bratina and R. Gajić, Influence of a gold substrate on the optical properties of graphene, *J. Appl. Phys.* **117**, 015305 (2015).

2014

1. **B. Vasić** and R. Gajić, Tunable FabryPerot resonators with embedded graphene from terahertz to near-infrared frequencies, *Opt. Lett.* **39**, 6253 (2014).
2. **B. Vasić** and R. Gajić, Enhanced phase sensitivity of metamaterial absorber near the point of darkness, *J. Appl. Phys.* **116**, 023102 (2014).
3. U. Ralević, G. Isić, **B. Vasić** and R. Gajić, Modulating light with graphene embedded into an optical waveguide, *J. Phys. D: Appl. Phys.* **47**, 335101 (2014).

2013

1. **B. Vasić**, M. M. Jakovljević, G. Isić and R. Gajić, Graphene induced spectral tuning of metamaterial absorbers at mid-infrared frequencies, *Appl. Phys. Lett.* **103**, 261111 (2013).
2. M. Wiesbauer, R. Wollhofen, **B. Vasić**, K. Schilcher, J. Jacak and T. A. Klar, Nano-Anchors with Single Protein Capacity Produced with STED Lithography, *Nano Lett.* **13**, 5672 (2013).
3. M. Kratzer, S. Klima, C. Teichert, **B. Vasić**, A. Matković, U. Ralević, and R. Gajić, Temperature dependent growth morphologies of parahexaphenyl on SiO₂ supported exfoliated graphene, *J. Vac. Sci. Technol. B* **31**, 04D114 (2013).

4. **B. Vasić**, M. M. Jakovljević, G. Isić and R. Gajić, Tunable metamaterials based on split ring resonators and doped graphene, *Appl. Phys. Lett.* **103**, 011102 (2013).
5. **B. Vasić**, G. Isić and R. Gajić, Localized surface plasmon resonances in graphene ribbon arrays for sensing of dielectric environment at infrared frequencies, *J. Appl. Phys.* **113**, 013110 (2013).
6. **B. Vasić**, M. Kratzer, A. Matković, A. Pavitschitz, U. Ralević, Dj. Jovanović, C. Ganser, C. Teichert and R. Gajić, Atomic force microscopy based manipulation of graphene using dynamic plowing lithography, *Nanotechnology* **24**, 015303 (2013).

2012

1. A. Matković, A. Beltaos, M. Milićević, U. Ralević, **B. Vasić**, Dj. Jovanović and R. Gajić, Spectroscopic imaging ellipsometry and Fano resonance modeling of graphene, *J. Appl. Phys.* **112**, 123523 (2012).
2. **B. Vasić** and R. Gajić, Plasmonic photonic band gaps robust to disorder in two dimensional plasmonic crystals, *J. Opt. Soc. Am. B* **29**, 2964 (2012).
3. M. M. Jakovljević, G. Isić, **B. Vasić**, T. W. H. Oates, K. Hinrichs, I. Bergmair, K. Hingerl and R. Gajić, Spectroscopic ellipsometry of split ring resonators at infrared frequencies, *Appl. Phys. Lett.* **100**, 161105 (2012).
4. **B. Vasić** and R. Gajić, Broadband and subwavelength terahertz modulators using tunable plasmonic crystals with semiconductor rods, *J. Phys. D: Appl. Phys.* **45**, 095101 (2012).
5. **B. Vasić** and R. Gajić, Tunable gradient refractive index optic using graded plasmonic crystals with semiconductor rods, *J. Opt. Soc. Am. B* **29**, 79 (2012).

2011

1. **B. Vasić** and R. Gajić, Self-focusing media using graded photonic crystals: Focusing, Fourier transforming and imaging, directive emission, and directional cloaking, *J. Appl. Phys.* **110**, 053103 (2011).

2010

1. **B. Vasić**, G. Isić, R. Gajić, and K. Hingerl, Controlling electromagnetic fields with graded photonic crystals in metamaterial regime, *Opt. Express* **18**, 20321 (2010).

2009

1. **B. Vasić**, G. Isić, R. Gajić, and K. Hingerl, Coordinate transformation based design of confined metamaterial structures, *Phys. Rev. B* **79**, 085103 (2009).

CONFERENCE
PROCEEDINGS
PAPERS IN PEER
REVIEWED
JOURNALS

2014

1. M. Kratzer, S. Klima, C. Teichert, **B. Vasić**, A. Matković, M. Milićević and R. Gajić, Layer Dependent Wetting in Parahexaphenyl Thin Film Growth on Graphene, *e-ISSNT* **12**, 31 (2014).

2012

1. A. Matković, U. Ralević, G. Isić, M. M. Jakovljević, **B. Vasić**, I. Milošević, D. Marković and R. Gajić, Spectroscopic ellipsometry and the Fano resonance modeling of graphene optical parameters, *Phys. Scr.* **T149**, 014069 (2012).

2011

1. **B. Vasić**, R. Gajić, and K. Hingerl, Graded photonic crystals for implementation of gradient refractive index media, *J. Nanophotonics* **5**, 051806 (2011).
2. M. Jakovljević, **B. Vasić**, G. Isić, R. Gajić, T. Oates, K. Hinrichs, I. Bergmair, and K. Hingerl, Oblique incidence reflectometry and spectroscopic ellipsometry of split-ring resonators in infrared, *J. Nanophotonics* **5**, 051815 (2011).
3. G. Isić, M. Jakovljević, M. Filipović, Dj. Jovanović, **B. Vasić**, S. Lazović, N. Puač, Z. Lj. Petrović, R. Kostić, R. Gajić, J. Humlicek, M. Losurdo, G. Bruno, I. Bergmair, and K. Hingerl, Spectroscopic ellipsometry of few layer graphene, *J. Nanophotonics* **5**, 051809 (2011).

2009

1. **B. Vasić**, G. Isić, R. Gajić, and K. Hingerl, Optical design of 2D confined structures with metamaterial layers based on coordinate transformations, *Phys. Scr.* **T135**, 014045 (2009).
2. G. Isić, **B. Vasić**, M. Mirić, B. Jokanović, I. Bergmair, R. Gajić, and K. Hingerl, Modelling the variable angle reflection and transmission from metamaterial slabs, *Acta Phys. Pol. A* **116**, 631 (2009).

3. **B. Vasić**, G. Isić, R. Gajić, and K. Hingerl, Confined metamaterial structures based on coordinate transformations, *Acta Phys. Pol. A* **116**, 96 (2009).