

## List of Publications (1996-2017)

1. T. Braniste, Joachim Ciers, Ed. Monaico, D. Martin, J.-F. Carlin, V.V. Ursaki, V.V. Sergentu, I.M. Tiginyanu, N. Grandjean.  
Multilayer porous structures of HVPE and MOCVD grown GaN for photonic applications.  
*Superlattices and Microstructures*, Vol. 102, pp. 221-234 (2017).
2. Atomically thin semiconducting layers and nanomembranes: A review.  
Mircea Dragoman, Daniela Dragoman, and Ion Tiginyanu.  
*Semiconductor Science and Technology*, Vol. 32, 033001 (2017).
3. Gold electroplating on InP nanostructures fabricated by anodic etching of bulk substrates.  
E. V. Monaico, I. M. Tiginyanu, V. V. Ursaki, K. Nielsch, D. Balan, M. Prodana, and M. Enachescu.  
*Journal of the Electrochemical Society*, Vol. 164, no 4, pp. D179-183 (2017).
4. Hybridization of zinc oxide tetrapods for selective gas sensing applications.  
O. Lupan, V. Postica, J. Gröttrup, A. K. Mishra, N. H. de Leeuw, J. F. C. Carreira, J. Rodrigues, N. Ben Sedrine, M. R. Correia, T. Monteiro, V. Cretu, I. Tiginyanu, D. Smazna, Y. K. Mishra, R. Adelung.  
*ACS Applied Materials & Interfaces*, Vol. 9, pp. 4084-4099 (2017).
5. Size-dependent UV and gas sensing response of individual Fe<sub>2</sub>O<sub>3</sub>-ZnO:Fe micro- and nanowire based devices.  
J. Gröttrup, V. Postica, N. Ababii, O. Lupan, C. Zamponi, D. Meyners, Y. K. Mishra, V. Sontea, I. Tiginyanu, and R. Adelung.  
*Journal of Alloys and Compounds*, Vol. 701, pp. 920-925 (2017).
6. Mott type electrical conductivity in ZnS<sub>x</sub>Se<sub>1-x</sub> thin films.  
M. Popa, I. Tiginyanu, V. Ursaki.  
*Romanian Journal of Physics*, Vol. 62, no 1-2, 602 (2017).
7. Synthesis and characterization of photosensible CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> and CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3-x</sub>Cl<sub>x</sub> Perovskite crystalline films.  
I. Plesco, V. Postolache, G. Volodina, V. Zalamai, L. Ghimpu, I. Tiginyanu.  
*Surface Engineering and Applied Electrochemistry*, Vol. 53, no 1, pp. 15-19 (2017).
8. Ultra-lightweight pressure sensor based on graphene aerogel decorated with piezoelectric nanocrystalline films.  
Mircea Dragoman, Lidia Ghimpu, Cosmin Obreja, Adrian Dinescu, Irina Plesco, Daniela Dragoman, Tudor Braniste, Ion Tiginyanu.  
*Nanotechnology*, Vol. 27, 475203 (2016).
9. Anomalous retroreflection from nanoporous materials as backscattering by „dark” and „bright” modes.  
V. V. Sergentu, S. Ya. Prislopski, E. V. Monaico, V. V. Ursaki, S. V. Gaponenko, I. M. Tiginyanu.  
*Journal of Optics*, Vol. 18, no 12, 125008 (2016).
10. Multifunctional Device based on ZnO:Fe Nanostructured Films with Enhanced UV and Ultra-Fast Ethanol Vapour Sensing.  
Vasile Postica, Iris Hölken, Viktor Schneider, Victor Kaidas, Oleksandr Polonskyi, Vasillii Cretu, Ion Tiginyanu, Franz Faupel, Rainer Adelung, Oleg Lupan.  
*Materials Science in Semiconductor Processing*, Vol. 49, pp. 20-33 (2016).
11. Synthesis, characterization and DFT studies of zinc-doped copper oxide nanocrystals for gas sensing applications.  
V. Cretu, V. Postica, A. K. Mishra, M. Hoppe, I. Tiginyanu, Y. K. Mishra, L. Chow, Nora H. De Leeuw, R. Adelung, and O. Lupan.  
*Journal of Materials Chemistry A*, Vol. 4, pp. 6527-6539 (2016).

12. Influence of CuO nanostructures morphology on hydrogen gas sensing performances.  
O. Lupan, V. Postica, N. Ababii, M. Hoppe, V. Cretu, I. Tiginyanu, V. Sontea, Th. Pauporte, B. Viana, R. Adelung.  
***Microelectronic Engineering***, Vol. 164, pp. 63-70 (2016).
13. Exciton-polariton laser.  
S. A. Moskalenko, I. M. Tiginyanu.  
***Low Temperature Physics***, Vol. 42, no 5, pp. 426-437 (2016).
14. Light-induced motion of microengines based on microarrays of TiO<sub>2</sub> nanotubes.  
Mihail Enachi, Maria Guix, Vitalie Postolache, Vladimir Ciobanu, Vladimir M. Fomin, Oliver G. Schmidt, Ion Tiginyanu.  
***Small***, Vol. 12, no 39, pp. 5497-5505 (2016).
15. Strong light scattering and broadband (UV to IR) photoabsorption in stretchable 3D hybrid architectures based on Aerographite decorated by ZnO nanocrystallites.  
Ion Tiginyanu, Lidia Ghimpu, Vitalie Postolache, Matthias Mecklenburg, Marion A. Stevens-Kalceff, Veaceslav Ursaki, Nader Payami, Robert Feidenhansl, Karl Schulte, Rainer Adelung, and Yogendra K. Mishra.  
***Scientific Reports***, Vol. 6, 32913 (2016).
16. Viability and proliferation of endothelial cells upon exposure to GaN nanoparticles.  
Tudor Braniste, Ion Tiginyanu, Tibor Horvath, Simion Raevschi, Serghei Cebotari, Marco Lux, Axel Haverich, Andres Hilfiker.  
***Belstein Journal of Nanotechnology***, Vol. 7, pp. 1330-1337 (2016).
17. Memristive GaN ultrathin suspended membrane array.  
Mircea Dragoman, Ion Tiginyanu, Daniela Dragoman, Tudor Braniste, Vladimir Ciobanu.  
***Nanotechnology***, Vol. 27, 295204 (2016).
18. Self-Organized Three-Dimensional Nanostructured Architectures in Bulk GaN Generated by Spatial Modulation of Doping.  
Ion Tiginyanu, Marion A. Stevens-Kalceff, Andrei Sarua, Tudor Braniste, Eduard Monaico, Veaceslav Popa, Hugo D. Andrade, James Thomas, Simion Raevschi, Karl Schulte, Rainer Adelung.  
***ECS Journal of Solid State Science and Technology***, Vol. 5, no 5, pp. 218-227 (2016).
19. The interference of birefringence waves in ZnAl<sub>2</sub>Se<sub>4</sub>:Co<sup>2+</sup> crystal.  
N. N. Syrbu, V. V. Zalamai, A. Tiron, I. M. Tiginyanu.  
***Physics B: Condensed Matter***, Vol. 487, pp. 61-67 (2016).
20. Silver-doped zinc oxide single nanowire multifunctional nanosensor with a significant enhancement in response.  
Oleg Lupan, Vasiliu Cretu, Vasile Postica, Mahdi Ahmadi, Beatriz, Roldan Cuenya, Lee Chow, Ion Tiginyanu, Bruno Viana, Thierry Pauporté, Rainer Adelung.  
***Sensors and Actuators B – Chemical***, Vol. 223, pp. 893-903 (2016).
21. Enhanced Ethanol Vapour Sensing Performances of Copper Oxide Nanocrystals with Mixed Phases.  
Oleg Lupan, Vasiliu Cretu, Vasile Postica, Nicolai Ababii, Oleksandr Polonskyi, Victor Kaidas, Fabian Schütt, Yogendra K Mishra, Eduard Monaico, Ion Tiginyanu, Victor Sontea, Thomas Strunskus, Franz Faupel, Rainer Adelung.  
***Sensors and Actuators B – Chemical***, Vol. 224, pp. 434-448 (2016).
22. Flexible Photonic Crystals based on Ultrathin Membranes.  
Ion Tiginyanu  
***Romanian Reports in Physics***, Vol. 67, No. 4, pp. 1319–1321 (2015).  
Invited Paper presented at the ROMOPTO Conference, Report III.I.2. September 1-4, 2015, Bucharest, Romania.

23. Heterogeneous Nanocrystallites in Mixed Phases Ga<sub>2</sub>O<sub>3</sub>/GaN:Ox@SnO<sub>2</sub> forming Shell-Core Nanobelts for Double-Heterojunction Enhanced Sensors.  
Oleg Lupan, Tudor Braniste, Mao Deng, Lidia Ghimpu, Ingo Paulowicz, Yogendra K. Mishra, Lorenz Kienle, Rainer Adelung, Ion Tiginyanu.  
*Sensors and Actuators B – Chemical*, Vol. 221, pp. 544-555 (2015).
24. Three dimensional SnO<sub>2</sub> nanowire networks for multifunctional applications: From high temperature stretchable ceramics to ultrasensitive sensors.  
Ingo Paulowicz, Viktor Hrkac, Sören Kaps, Oleg Lupan, Vasiliu Cretu, Tudor Braniste, Viola Duppel, Ion Tiginyanu, Lorenz Kienle, Rainer Adelung, and Yogendra Kumar Mishra.  
*Advanced Electronic Materials*, Vol. 1, issue 8, 1500081 (2015).
25. Interference of birefractive waves in CdGa<sub>2</sub>S<sub>4</sub> crystals.  
N. N. Syrбу, A. V. Tiron, V. I. Parvan, V. V. Zalamai, and I. M. Tiginyanu.  
*Physica B: Condensed Matter*, Vol. 463, pp. 88-92 (2015).
26. Photocatalytic properties of TiO<sub>2</sub> nanotubes doped with Ag, Au and Pt or covered by Ag, Au and Pt nanodots.  
Mihail Enachi, Maria Guix, Tudor Braniste, Vitalie Postolache, Vladimir Ciobanu, Veaceslav Ursaki, Oliver G. Schmidt, and Ion Tiginyanu.  
*Surface Engineering and Applied Electrochemistry*, Vol. 51, no 1, pp. 3-8 (2015).
27. Structure and morphology of the nanoporous ZnO and dark current-voltage characteristics of the glass/(TCO)/ZnO/poly[2,7-(9,9-dioctylfluorene)-alt-(5,5'-bithiophene)]/Ag structure.  
Lidia Ghimpu, Tamara Potlog, Ion Tiginyanu, Aurica Farcas.  
*Journal of Applied Polymer Science*, Vol. 132, issue 33, 42415 (2015).
28. Control of persistent photoconductivity in nanostructured InP via morphology design.  
Eduard Monaico, Vitalie Postolache, Eugeniu Borodin, Veaceslav Ursaki, Oleg Lupan, Rainer Adelung, Kornelius Nielsch, and Ion Tiginyanu.  
*Semiconductor Science and Technology*, Vol. 30, 035014 (2015).
29. Optical reflectance studies of highly specular anisotropic nanoporous (111)InP membrane.  
J. A. Steele, R. A. Lewis, L. Sirbu, M. Enachi, I. M. Tiginyanu, and V. A. Skuratov.  
*Semiconductor Science and Technology*, Vol. 30, 044003 (2015).
30. Self-assembled monolayer of Au dots deposited on porous semiconductor structures.  
Ion Tiginyanu, Eduard Monaico, and Kornelius Nielsch.  
*ECS Electrochemistry Letters*, Vol. 4, no 4, pp. D8-D10 (2015).
31. Three-dimensional Aerographite-GaN hybrid networks: Single step fabrication of porous and mechanically flexible materials for multifunctional applications.  
Arnim Schuchardt, Tudor Braniste, Yogendra K. Mishra, Mao Deng, Matthias Mecklenburg, Marion A. Stevens-Kalceff, Simion Raevschi, Karl Schulte, Lorenz Kienle, Rainer Adelung, and Ion Tiginyanu.  
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32. Integration of individual TiO<sub>2</sub> nanotubes on the chip: Nanodevice for hydrogen sensing.  
M. Enachi, O. Lupan, T. Braniste, A. Sarua, L. Chow, Y. K. Mishra, D. Gedamu, R. Adelung, and I. Tiginyanu.  
*Physica Status Solidi – Rapid Research Letters*, Vol. 9, issue 3, pp. 171-174 (2015).
33. HgGa<sub>2</sub>Se<sub>4</sub> under high pressure: an optical absorption study.  
O. Gomis, R. Vilaplana, F.J. Manjón, J. Ruiz-Fuertes, E. Pérez-González, J. López-Solano, E. Bandiello, D. Errandonea, A. Segura, P. Rodríguez-Hernández, A. Muñoz, V. V. Ursaki, and I. M. Tiginyanu.  
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34. Metallized porous GaP templates for electronic and photonic applications.  
Ion Tiginyanu, Eduard Monaico, Vladimir Sergentu, Andrei Tiron, and Veaceslav Ursaki.  
*ECS J. Solid State Sci. Technol.*, Vol. 4, issue 3, pp. P57-P62 (2015).

35. Retroreflection of light from nanoporous InP: correlation with high absorption. S. Ya. Prislowski, I. M. Tiginyanu, L. Ghimpu, E. Monaico, L. Sirbu, S. V. Gaponenko. *Applied Physics A*, Volume 117, Issue 2, pp 467-470 (2014).
36. GaN nanostructuring for the fabrication of thin membranes and emerging applications. Ion Tiginyanu and Veaceslav Ursaki. *Turkish Journal of Physics*, Vol. 38, pp. 326-368 (2014).
37. Structural and vibrational study of pseudocubic CdIn<sub>2</sub>Se<sub>4</sub> under compression. D. Santamaría-Pérez, O. Gomis, A. Pereira, R. Vilaplana, C. Popescu, J. A. Sans, F. J. Manjon, P. Rodriguez-Hernandez, A. Munoz, V.V. Ursaki, I. Tiginyanu. *Journal of Physical Chemistry C*, Vol. 118, pp. 26987-26999 (2014).
38. Structural and vibrational properties of CdAl<sub>2</sub>S<sub>4</sub> under high pressure: Experimental and theoretical approach. Juan Ángel Sans, David Santamaría-Pérez, Catalin Popescu, Oscar Gomis, Francisco Javier Manjón, Rosario Vilaplana, Alfonso Muñoz, Plácida Rodríguez-Hernández, Veaceslav V. Ursaki, and Ion M. Tiginyanu. *Journal of Physical Chemistry C*, Vol. 118, pp. 15363-15374 (2014).
39. Growth of ZnCdS single crystals and prospects of their application as nanoporous structures. Gleb, Colibaba, Eduard Monaico, Evghenii Goncarencu, Dmitrii Nedeoglo, Ion Tiginyanu, and Kornelius Nielsch. *Semiconductor Science and Technology*, Vol. 29, pp. 125003 (2014).
40. Formation of InP nanomembranes and nanowires under fast anodic etching of bulk substrates. Eduard Monaico, Ion Tiginyanu, Olesia Volciuc, Thorsten Mehrrens, Andreas Rosenauer, Jürgen Gutowski and Kornelius Nielsch. *Electrochemistry Communications*, Vol. 47, pp. 29-32 (2014).
41. Effect of heavy noble gas ion irradiation on terahertz emission efficiency of InP (100) and (111) crystal planes. Krunal Radhanpura, Roger Lewis, Lilian Sirbu, Mihail Enachi, Ion Tiginyanu, and Vladimir Skuratov. *Semiconductor Science and Technology*, Vol. 29, pp. 095015 (2014).
42. Versatile Growth of Freestanding Orthorhombic Alpha-Molybdenum Trioxide Nano- and Microstructures by Rapid Thermal Processing for Gas Nanosensors. Oleg Lupan, Vasilii Cretu, Mao Deng, Dawit Gedamu, Ingo Paulowicz, Sören Kaps, Yogendra Kumar Mishra, Oleksandr Polonskyi, Christiane Zamponi, Lorenz Kienle, Viorel Trofim, Ion Tiginyanu, and Rainer Adelung. *Journal of Physical Chemistry C*, Vol. 118, no 27, pp. 15068–15078 (2014).
43. Obtaining of II-VI compound substrates with controlled electrical parameters and prospects of their application for nanoporous structures. Gleb Colibaba, Evghenii Goncarencu, Dmitrii Nedeoglo, Natalia Nedeoglo, Eduard Monaico, and Ion Tiginyanu. *Physica Status Solidi C*, Vol. 11, no 9, pp. 1404-1407 (2014).
44. Investigation of optical properties and electronic transitions in bulk and nano-microribbons of molybdenum trioxide. O. Lupan, V. Trofim, V. Cretu, I. Stamov, N. N. Syrbu, I. Tiginyanu, Y. K. Mishra, and R. Adelung. *Journal of Physics D: Applied Physics*, Vol. 47, 085302 (2014).
45. A special section on nanotechnologies and nanomaterials for electronic and photonic applications. Ion Tiginyanu and Rainer Adelung. *Journal of Nanoelectronics and Optoelectronics*, Vol. 9, no 2, pp. 193-195 (2014).
46. Photonic Crystal Structures Based on GaN Ultrathin Membranes.

- Olesea Volciuc, Vladimir Sergentu, Ion Tiginyanu, Marco Schowalter, Veaceslav Ursaki, Andreas Rosenauer, Detlef Hommel, and Jürgen Gutowski  
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47. Renormalization of the Coulomb Law in an Amorphous System of Metallic Nanospheres and Its Impact on the Electronic Subsystem.  
 V. V. Sergentu, V. V. Ursaki, and I. M. Tiginyanu.  
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48. The Role of Alternating Current on Photo-Assisted Electrochemical Porosification of GaN  
 Ainorkhilah Mahmood, Naser M. Ahmed, Ion Tiginyanu, Yushamdan Yusof, Yam Fong Kwong, Chuah Lee Siang, and Zainuriah Hassan.  
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49. Structural and elastic properties of defect chalcopyrite  $\text{HgGa}_2\text{S}_4$  under high pressure.  
 O. Gomis, D. Santamaría-Pérez, R. Vilaplana, R. Luna, J. A. Sans, F. J. Manjón, D. Errandonea, E. Pérez-González, P. Rodríguez-Hernández, A. Muñoz, I. M. Tiginyanu, V. V. Ursaki  
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50. The impact of nanoporification on persistent photoconductivity and optical quenching effects in suspended GaN nanomembranes.  
 Olesea Volciuc, Tudor Braniste, Ion Tiginyanu, Marion A. Stevens-Kalceff, Jakob Ebeling, Timo Aschenbrenner, Detlef Hommel, Veaceslav Ursaki, and Jürgen Gutowski  
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 Mihai Enachi, Marion A. Stevens-Kalceff, Andrei Sarua, Veaceslav Ursaki, and Ion Tiginyanu.  
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 V. Sergentu, I. Tiginyanu, V. Ursaki.  
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59. Thermally activated cation ordering in  $\text{ZnGa}_2\text{Se}_4$  single crystals studied by Raman scattering, optical absorption, and ab initio calculations.

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