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Fields of specialization
(i) main field laser ablation of polymers, modification of polymers and polymer based composites
(ii) other fields polymer chemistry, laser-induced chemistry of polymers

Head of the laser laboratory
In the frame of the Nato projects SfP 984399 (http://www.tmf.ukim.edu.mk/graphene/) and SfP G5244 (http://sps-g5244.mk/) was
equipped laser laboratory with:
• Tunable pulsed TEA CO_2 laser
• AGS-X Universal testing machine with digital Extensimeter (Instrument for measuring the mechanical properties of the polymers and composites), AGS-X Series, SHIMADZU
• UV-VIS Spectrophotometer, UV-1240, SHIMADZU
• FTIR spectrophotometer Perkin Elmer, Spectrum 100
• Instrument for measuring the contact angle of the samples, See System, Advex Instruments
• Hi Cube Pfeiffer Vacuum (turbomolecular pump)
• Jandel RM3000 (Four point probe resistivity meter)
• QCM system for Sensor measurements with gas regulation system

Projects

1. Graphene/Polymer Based Sensor, NATO project No.SPS G5244, 2017-2020, PPD Co-director: JBGilev.
2. Novel sensors based on laser ablated graphene-polymer nanocomposites, NATO projectNo.984399, 2012-2015, PPD Co-director: JBGilev.
3. Czech Grant no.104/04/2028 [8319]: Laser ablative and non-ablative treatment of polymers: approach to novel polymeric structures, (2004-2006) Principal Investigator: J.Pola.
4. FP6-INCO SSA-RECAPO: Reinforcement the capacities of the department of polymer engineering for characterization and testing of polymers, (2006-2008) Principal Investigator: Lj.Arsov.

5. New laser induced process for production of novel carbon-based nanomaterials and carbon-based nanomaterials with incorporated Si, N, and B heteroatoms (joint project with JH IPC, IIC, and Institute of Physics ASCR, supported by ASCR, grant No.IAA400720619, 2006-2010 [8101])Principal Investigator: J.Pola.
6. 158989-TEMPUS-BE-TEMPUS-JPHES: Creation of University enterprise cooperation networks for education on sustainable technologies, (2010-2013) Principal Investigator: Z.Zavargo.

Part of Scientific publications

1. Ana Trajcheva, Nikolaos Politakos, Bertha T. Perez, Yvonne Joseph, Jadranka Blazevska Gilev, Radmila Tomovska, QCM nanocomposite gas sensors – Expanding the application of waterborne polymer composites based on graphene nanoribbon, https://doi.org/10.1016/j.polymer.2020.123335
2. Marija Prosheva, Maryam Ehsani, Bertha T Pérez-Martínez, Jadranka Blazevska Gilev, Yvonne Joseph and Radmila Tomovska, Dry sonication process for preparation of hybrid structures based on graphene and carbon nanotubes usable for chemical sensors, https://doi.org/10.1088/1361-6528/abe6c9
3. Bužarovska, A., Blazevska-Gilev, J., Pérez-Martnez, B.T. et al. Poly(l-lactic acid)/alkali lignin composites: properties, biocompatibility, cytotoxicity and antimicrobial behavior. J Mater Sci (2021). https://doi.org/10.1007/s10853-021-06185-6
4. Marija Prosheva, Mohammad Ali Aboudzadeh, Gracia Patricia Leal, Jadranka Blazhevska Gilev, and Radmila Tomovska, High-Performance UV Protective Waterborne Polymer Coatings Based on Hybrid Graphene/Carbon Nanotube Radicals Scavenging Filler DOI: 10.1002/ppsc.201800555
5. Tajana Kostadinova, Nikolaos Politakos, Ana Trajcheva, Jadranka Blazevska-Gilev, Radmila Tomovska, Effect of Graphene Characteristics on Morphology and Performance of Composite Noble Metal-Reduced Graphene Oxide SERS Substrate, Molecules 2021, 26, 4775.https://doi.org/10.3390/molecules26164775
6. Siljanovska Petreska G.,Salsamendi M.,Arzac A.,Leal G.P., Alegret N.,Blazevska Gilev J.,Tomovska R., Covalent-Bonded Reduced Graphene Oxide-Fluorescein Complex as a Substrate for Extrinsic SERS Measurements, ACS Omega (2017), 2, 4123-4131.
7. D. Spasevska, G. P. Leal,M. Fernandez,J. BlazevskaGilev, M. Paulis, R. Tomovska, Crosslinked reduced graphene oxide/polymer composites via in situ synthesis by semicontinuous emulsion polymerization, RSC Adv.,(2015), 5, 16414–16421.
8. G.S.Petreska, J.B.Gilev, R.Fajgar, R.Tomovska, Surface-Enhanced Raman Scattering activity of Ag/graphene/polymer nanocomposite films synthesized by laser ablation, Thin Solid Films 564, 115–120,(2014).

9. D.Spasevska, V.Daniloska, G.P.Leal, J.Blazevska Gilev, R.Tomovska, Reactive emulsion mixing as a novel pathway toward water-borne reduced graphene oxide/polymer composites, Royal
Society of Chemistry Advances, 4, 24477–24483, (2014).

10 D.Spasevska, J.Blaževska-Gilev, R.Fajgar, R.Tomovska, Water borne polymer/ graphene composites: Analysis of the thermal degradation process, Technologica Acta, 7,1, 1–96, (2014).

11. Jadranka Blazevska-Gilev, Vera Jandova, JaroslavKupcık, Zdenek Bastl, Jan Subrt, Petr Bezdicka, Josef Pola, Laser hydrothermal reductive ablation of titanium monoxide: Hydrated TiO, particles with modified Ti/O surface, Journal of Solid State Chemistry 197, 337–344, (2013).