

Curriculum Vitae

Dr. Vlasta ZAVISOVA (Kellnerova)

First Last name (Maiden name)

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Address Watsonova 47, 040 01 Kosice, SLOVAK REPUBLIC, zavisova@saske.sk
Tel: +421 55 792 2258
- Current Position** 2009 – to present, Senior researcher at Department of Magnetism, The Institute of Experimental Physics Slovak of the Academy of Sciences in Kosice, Slovak republic
- Education** 2005–2009 PhD in Condensed Matter Physics Faculty of Science in Kosice
Pavol Jozef Safarik University
1987–1992 Master of Science in Chemistry Faculty of Chemistry
Slovak University of Technology in Bratislava
- Awards** 2007 Slovak Academy of Sciences Award for scientific and research work and international scientific and technical cooperation;
2013 Slovak Academy of Sciences Award for scientific and research work
- Professional** Long-term research experience as well as expertise in preparation and characterization of the iron oxide nanoparticles of different shape, their functionalization mainly for applications in biology. Author/co-author of 114 CC publications, 968 citations, h-index 18 (WOS) 22 (SOPUS).
- Skill involved** Magnetic nanoparticles of different shape synthesis
Nanoparticles characterization (the techniques including):
 - UV visible spectroscopy;
 - Zeta potential analysis;
 - Dynamic light scattering measurement;
 - Scanning electron microscopy;
 - Superconducting quantum interference device for measuring the magnetic property;Functionalization of magnetic nanoparticles mainly for applications in biology.
- Projects** **International projects**
 - APVV-DS-FR-0052 Design and preparation of multifunctional magnetic nanoparticles for the cancer cell detection (2020-2022), *principal investigator from IEP SAS*;
 - EUREKA E!9982 Development and production of water-dispersible radionuclide labelled magnetic nanoparticles (2018 - 2020); *investigator*;
 - COST - TD 1402 RADIOMAG - Multifunctional Nanoparticles for Magnetic Hyperthermia and Indirect Radiation Therapy (2014–2018); *member of Management Committee*
 - SK-SRB-18-0055 Complementary analytic methods for the determination of the biodistribution of the magnetic nanoparticles (2019–2020); *investigator*;
 - SK-SRB-18-0066 Magnetic nanocomposites for biomedicine (2019–2020); *investigator*;**National projects**
 - APVV-14-0932 Effects of nanoencapsulated simvastatin on cardiovascular system in experimental metabolic syndrome (2015–2019); *Principal investigator (from IEP SAS)*;
 - APVV 0742-10 The effect of aliskiren loaded nanoparticles in experimental hypertension (2011–2014); *investigator*;
 - APVV-14-0120 Graphene-based nanoplatfrom for detection of cancer (2015–2019); *investigator*;

- VEGA 2/0049/23 Functionalized magnetic nanoparticles for MRI imaging of drug distribution in the lungs in experimental acute respiratory distress syndrome (ARDS) (2023–2026); *investigator*;
- VEGA 2/0033/19 Functionalization of magnetic nanoparticles for cancer cell detection (2019–2022); *Deputy of principal investigator*;

Projects in the frame of structural funds of European Union

- **313011AUW7** Nanoparticles for the solution of diagnostic and therapeutic problems with COVID-19 (2021 - 2023), *investigator*;
- **313011AVG3** Development of biomodels to improve efficacy evaluation of potentially effective drugs and substances in COVID-19 therapy (2021 - 2023), *investigator*;

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Selected

Publications in SCI-indexed journals

1. E. Şaman, M. Cebova, A. Barta, M. Koneracka, V. Zavisova, A. Eckstein-Andicsova, M. Danko, J. Mosnacek, O. Pechanova „*Combined Therapy with Simvastatin- and Coenzyme-Q10-Loaded Nanoparticles Upregulates the Akt-eNOS Pathway in Experimental Metabolic Syndrome*“, Int. J. Mol. Sci. 24, 276, 2023.
2. M. Mirkovic, Z. Milanovic, M. Peric, S. Vranjes-Đuric, M. Ognjanovic, B. Antic, M. Kuraica, I. Krstic, M. Kubovcikova, I. Antal, R. Sobotova, V. Zavisova, A. Jurikova, M. Fabian, M. Koneracka „*Design and preparation of proline, tryptophan and poly-L-lysine functionalized magnetic nanoparticles and their radiolabeling with ¹³¹I and ¹⁷⁷Lu for potential theranostic use*“, International Journal of Pharmaceutics 628 12228, 2022.
3. Z. Bednarikova, I. Antal, M. Kubovcikova, M. Koneracka, V. Girman, V. Zavisova, Z. Gazova „*Modified polymer nanospheres – Characterization and their anti-amyloid activity to insulin amyloid aggregation*“, Journal of Magnetism and Magnetic Materials 521, 167527, 2021.
4. B. Svitkova, V. Zavisova, V. Nemethova, M. Koneracka, M. Kretova, F. Razga, M. Ursinyova and A. Gabelova „*Differences in surface chemistry of iron oxide nanoparticles result in different routes of internalization*“, Beilstein J. Nanotechnol. 12, 270, 2021.
5. I. Antal, M. Koneracka, M. Kubovcikova, V. Zavisova, A. Jurikova, I. Khmara, M. Omastova, M. Micusik, M. Barathova, L. Jelenska, I. Kajanova, M. Zatovicova, S. Pastorekova „*Targeting of carbonic anhydrase IX-positive cancer cells by glycine-coated superparamagnetic nanoparticles*“, Colloids and Surfaces B: Biointerfaces 205, 111893, 2021.
6. O. Strbak, I. Antal, I. Khmara, M. Koneracka, M. Kubovcikova, V. Zavisova, M. Molcan, A. Jurikova, P. Hnilicova, J. Gombos, N. Kadasova, D. Dobrota „*Influence of dextran molecular weight on the physical properties of magnetic nanoparticles for hyperthermia and MRI applications*“, Nanomaterials 10, 2468, 2020.
7. I. Khmara, M. Molčan, A. Antošová, Z. Bednáriková, V. Závířová, M. Kubovčiková, A. Juríková, V. Girman, E. Baranovičová, M. Koneracká, Z. Gažová „*Bioactive properties of chitosan stabilized magnetic nanoparticles - Focus on hyperthermic and anti-amyloid activities*“, Journal of Magnetism and Magnetic Materials 513, art. no. 167056, 2020.
8. I. Antal, O. Strbak, I. Khmara, M. Koneracka, M. Kubovcikova, V. Zavisova, M. Kmetova, E. Baranovicova, D. Dobrota „*MRI Relaxivity Changes of the Magnetic Nanoparticles Induced by Different Amino Acid Coatings*“, Nanomaterials 10, 394, 2020.
9. M. Kubovcikova, M. Koneracka, O. Strbak, M. Molcan, V. Zavisova, I. Antal, I. Khmara, D. Lucanska, L. Tomco, M. Barathova, M. Zatovicova, D. Dobrota, S. Pastorekova, P. Kopcansky:

Poly-L-lysine designed magnetic nanoparticles for combined hyperthermia, magnetic resonance imaging and cancer cell detection, *J. Magn. Magn. Mater.* 475 (2019) 316-326. DOI: 10.1016/j.jmmm.2018.11.027

10. I. Khmara, O. Strbak, V. Zavisova, M. Koneracka, M. Kubovcikova, I. Antal, V. Kavecansky, D. Lucanska, D. Dobrota, P. Kopcansky, Chitosan-stabilized iron oxide nanoparticles for magnetic resonance imaging, *J. Magn. Magn. Mater.* 474 (2019) 319-325. DOI: 10.1016/j.jmmm.2018.11.026
11. V. Zavisova, M. Koneracka, A. Gabelova, B. Svitkova, M. Ursinyova, M. Kubovcikova, I. Antal, I. Khmara, A. Jurikova, M. Molcan, M. Ognjanović, B. Antić, P. Kopcansky: Effect of magnetic nanoparticles coating on cell proliferation and uptake, *J. Magn. Magn. Mater.* 472 (2019) 66-73. DOI: 10.1016/j.jmmm.2018.09.116
12. A. Antosova, Z. Bednarikova, M. Koneracka, I. Antal, V. Zavisova, M. Kubovcikova, Josephine W. Wu, Steven S-S Wang, Z. Gazova: Destroying activity of glycine coated magnetic nanoparticles on lysozyme, alpha-lactalbumin, insulin and alpha-crystallin amyloid fibrils, *J. Magn. Magn. Mater.* 471 (2019) 169-176. DOI: 10.1016/j.jmmm.2018.09.096
13. I. Antal, M. Koneracka, M. Kubovcikova, V. Zavisova, I. Khmara, D. Lucanska, L. Jelenska, I. Vidlickova, M. Zatovicova, S. Pastorekova, N. Bugarova, M. Micusik, M. Omastova, P. Kopcansky: D,L-lysine functionalized Fe₃O₄ nanoparticles for detection of cancer cells, *Colloids Surfaces B Biointerfaces* 163 (2018) 236–245. DOI: 10.1016/j.colsurfb.2017.12.022
14. I. Khmara, M. Kubovcikova, M. Koneracka, B. Kalska-Szostko, V. Zavisova, I. Antal, M. Rajnak, Z. Dankova, V. Kavecansky, M. Omastova, P. Kopčansky: Preparation and Characterization of Magnetic Nanoparticles, *ACTA PHYSICA POLONICA A* 133 (2018) 3, 704-706, DOI: 10.12693/APhysPolA.133.704
15. I. Khmara, M. Koneracka, M. Kubovcikova, V. Zavisova, I. Antal, K. Csach, P. Kopcansky, I. Vidlickova, L. Csaderova, S. Pastorekova, M. Zatovicova: Preparation of poly-L-lysine functionalized magnetic nanoparticles and their influence on viability of cancer cells, *J. Magn. Magn. Mater.* 427 (2017) 114–121. DOI: 10.1016/j.jmmm.2016.11.014
16. O. Strbak, I. Antal, D. Gogola, L. Baciak, M. Kubovcikova, M. Koneracka, V. Zavisova, A. Krafcik, M. Masarova-Kozelova, P. Kopcansky, I. Frolo: Measurement of the magnetite nanoparticles' relaxivity during encapsulation into polylactide carriers, *MEASUREMENT* 104 (2017) 89-92. DOI: 10.1016/j.measurement.2017.03.019
17. V. Zavisova, M. Koneracka, J. Kovac, M. Kubovcikova, I. Antal, P. Kopcansky, M. Bednarikova, M. Muckova: The cytotoxicity of iron oxide nanoparticles with different modifications evaluated in vitro, *J. Magn. Magn. Mater.* 380 (2015) 85–89. DOI: 10.1016/j.jmmm.2014.10.041
18. I. Antal, M. Kubovcikova, V. Zavisova, M. Koneracka, O. Pechanova, A. Barta, M. Cebova, V. Antal, P. Diko, M. Zduriencikova, M. Pudlak, P. Kopcansky: Magnetic poly(D,L-lactide) nanoparticles loaded with aliskiren: A promising tool for hypertension treatment, *J. Magn. Magn. Mater.* 380 (2015) 280–284. DOI: 10.1016/j.jmmm.2014.10.089
19. M. Kubovčíková, M. Koneracká, V. Závišová, M. Múčková, M. Timko, Ľ. Schmidtová, P. Bartoš, P. Kopčanský: Biodistribution and in Vivo Anticancer Effects of Taxol Loaded Magnetic Nanospheres *IEEE Transactions on Magnetism* 49 (2013) 1, 353-358.
20. A. Jurikova, K. Csach, J. Miskuf, M. Koneracka; V. Zavisova, M. Kubovcikova, P. Kopcansky, M. Muckova: Thermal Properties of Magnetic Nanoparticles Modified with Polyethylene Glycol, *IEEE Transactions on Magnetism* 49 (2013) 1, 236-239, Part 2.
21. K. Siposova, E. Bystrenova, A. Antosova, M. Koneracka, V. Zavisova, P. Kopcansky, Z. Gazova: Attenuation of the Insulin Amyloid Aggregation in presence of Fe₃O₄-based Magnetic Fluids, *An International Journal: General Physiology and Biophysics* 32 (2013) 209.

22. K. Siposova, M. Kubovčikova, Z. Bednarikova, M. Koneracka, V. Zavisova, P. Kopcansky, Z. Gazova: MFBSAs as therapeutic agents targeting insulin amyloidosis, *Magneto hydrodynamics* 49 (2013) 3-4, 560–56.
23. M. Kubovčikova, I. Antal, M. Koneracka, V. Zavisova, A. Jurikova, K. Siposova, Z. Gazova, J. Kovač, M. Kovarik, D. Kupka, P. Kopčansky: Magnetic nanoparticles modified with polyethylene glycol. *Magneto hydrodynamics* 49 (2013) 3-4, 282-286.
24. K. Siposova, M. Kubovcikova, Z. Bednarikova, M. Koneracka, V. Zavisova, A. Antosova, P. Kopcansky, Z. Daxnerova, Z. Gazova: Depolymerization of insulin amyloid fibrils by albumin-modified magnetic fluid, *Nanotechnology* 23 (2012) 055101 (10pp).
25. N. Tomašovičová, I. Haysak, M. Koneracká, J. Kováč, M. Timko, V. Závišová, A. Okunev, A. Parlag, A. Fradkin, V. Sakhno, P. Kopčanský: Magnetic Properties of Biocompatible Magnetic Fluid after Electron Irradiation, *Acta Physica Polonica A* 121 (2012) 5-6, 1302 -1304.
26. K. Csach, A. Juríková, J. Miškuf, M. Koneracká, V. Závišová, M. Kubovčiková, P. Kopčanský: Thermogravimetric Study of the Decomposition of BSA-Coated Magnetic Nanoparticles, *Acta Physica Polonica A* 121 (2012) 5-6, 1293-1295.
27. V. Závišová, M. Koneracká, M. Múčková, J. Lazová, A. Juríková, G. Lancz, N. Tomašovičová, M. Timko, J. Kováč, I. Vávra, M. Fabián, A. Feoktysov, M.V. Garamus, M. Avdeev, P. Kopčanský: Magnetic fluid poly(ethylene glycol) with moderate anticancer activity, *J. Magn. Magn. Mater.* 323 (2011) 10, 1408-1412.
28. M.V. Avdeev, A.V. Feoktystov, P. Kopčanský, G. Lancz, V.M. Garamus, R. Willumeit, M. Timko, M. Koneracká, V. Závišová, N. Tomašovičová, A. Juríková, K. Csach, L.A. Bulavin: Structure of water-based ferrofluids with sodium oleate and polyethylene glycol stabilization by small-angle neutron scattering: contrast-variation experiments, *Journal of Applied Crystallography*, 43 (2010) 1, 959-969.
29. V. Závišová, M. Koneracká, M. Múčková, P. Kopčanský, N. Tomašovičová, G. Lancz, M. Timko, B. Pátoprstá, P. Bartoš, M. Fabián: Synthesis and characterization of polymeric nanospheres loaded with the anticancer drug paclitaxel and magnetic particles, *J. Magn. Magn. Mater.* 321 (2009) 1613-1616.
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31. M. Koneracká, M. Múčková, V. Závišová, N. Tomašovičová, P. Kopčanský, M. Timko, A. Juríková, K. Csach, V. Kavečanský, G. Lancz: Encapsulation of anticancer drug and magnetic particles in biodegradable polymer nanospheres, *Journal of Physics: Condensed Matter* 20 (2008) 20, 204151-1-6.
32. M. Koneracká, V. Závišová, M. Timko, P. Kopčanský, N. Tomašovičová, K. Csach: Magnetic properties of encapsulated magnetite in PLGA nanospheres, *Acta Physica Polonica A* 113 (2008) no. 1, 595-598.
33. M. Timko, A. Džarová, P. Kopčanský, V. Závišová, M. Koneracká, J. Kováč, A. Šprincová, M. Vaclavíková, L. Ivaničová, I. Vávra: Magnetic properties of magnetite formed by biomineralization and chemical synthesis, *Acta Physica Polonica A* 113 (2008) 1, 573-576.
34. P. Kopčanský, N. Tomašovičová, M. Koneracká, V. Závišová, M. Timko, A. Džarová, A. Šprincová, N. Éber, K. Fodor-Csorba, T. Tóth-Katona, A. Vajda, J. Jadzyn: Structural changes in the 6CHBT liquid crystal doped with spherical, rodlike, and chainlike magnetic particles, *Physical Review E* 78 (2008) part 1, p. 011702-1-5.
35. M. Cavallini, E. Bystrenová, M. Timko, M. Koneracká, V. Závišová, P. Kopčanský: Multiple-length-scale patterning of magnetic nanoparticles by stamp assisted deposition, *Journal of Physics: Condensed Matter*, vol. 20, no. 20 (2008) 204144-1-5.

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37. V. Závířová, M. Koneracká, N. Tomašovičová, P. Kopčanský, M. Timko: Some immobilization modes of biologically active substances to fine magnetic particles, *Z. Phys. Chem.* 220 (2006) 241-250.
38. M. Timko, M. Koneracká, N. Tomašovičová, P. Kopčanský, V. Závířová: Magnetite polymer nanospheres loaded by Indomethacin for antiinflammatory therapy, *J. Magn. Magn. Mater.* 300 (2006) e191 - 194.

Patent № 201404260 I.P. Studenjak, O.V. Kovalčuk, P. Kopčanský, M. Timko, V. Závířová, N. Tomašovičová: Method for increasing of ion conductivity of the liquid crystal based composite

Books/Book Chapters Kopcansky, P; Timko, M; Koneracka, M; Závířova, V; Kubovcikova, M; Molcan, M; Balejcikova, L; Tomasovicova, N; Rajnak, M; Gdovinova, V: Magnetic fluids and their complex systems, *Springer Proceedings in Physics*, Volume 197, 2018, Pages 151-18, DOI: 10.1007/978-3-319-61109-9_8