



ISSN 2669-1930 (online)

25TH INTERNATIONAL CONFERENCE-SCHOOL

WHEN	WHERE
21-25	Palanga
August	Lithuania
2023	

25

**ADVANCED
MATERIALS
AND
TECHNOLOGIES
2023**

www.advancedmaterials.ktu.edu

BOOK OF ABSTRACTS

ISSN 2669-1930 (online)

*Book of Abstracts
of 25th International Conference-School*

ADVANCED MATERIALS AND TECHNOLOGIES

21–25 August 2023, Palanga, Lithuania

Kaunas, 2023

Organizers:

Institute of Materials Science of Kaunas University of Technology (KTU)
Lithuanian Materials Research Society (LT-MRS)
Vilnius University (VU)
University of Latvia (LU)
Riga Technical University (RTU)
University of Tartu (TU)
Center for Physical Sciences and Technology (FTMC)
University of Southern Denmark (SDU)
Applied Research Institute for Prospective Technologies (ProTech)

Programme committee:

Prof. S. Tamulevičius (KTU) – *chairman*
Assoc. prof. L. Balaševičius (KTU)
Prof. J. V. Gražulevičius (KTU)
Dr. R. Butkutė (FTMC)
Prof. A. Kareiva (VU)
Prof. G. Juzellūnas (VU)
Prof. G. Tamulaitis (VU)
Prof. D. Erts (LU)
Prof. Y. Dekhtyar (RTU)
Prof. I. Leito (TU)
Dr. R. Lohmus (TU)
Prof. H.-G. Rubahn (SDU)

Organizing committee:

Prof. S. Tamulevičius (KTU) – *chairman*
Dr. R. Žostautienė (KTU) – *secretary*
Dr. R. Mardosaitė (KTU)
Dr. E. Fataraitė-Urbonienė (KTU, ProTech)
Dr. A. Tamulevičienė (KTU)
Dr. T. Tamulevičius (KTU)
Dr. L. Puodžiukynas (KTU)
Dr. E. Rajackaitė (KTU)
PhD student T. Klinavičius (KTU)
PhD student M. Ilickas (KTU)
V. Sinkevičienė (KTU)

Home page: <http://advancedmaterials.ktu.edu>

© Kaunas University of Technology, 2023

doi: 10.5755/e01.2669-1930.2023

Nanoparticles and Immunosensors: a Promising Combination for Sensitive Biomarker Detection

Anton Popov, Viktorija Lisyte, Arnas Treimakas, Benediktas Brasiunas, Asta Kausaite-Minkstimiene, Almira Ramanaviciene

NanoTechnas-Center of Nanotechnology and Materials Science, Faculty of Chemistry and Geosciences, Vilnius University, Naugarduko St. 24, LT-03225 Vilnius, Lithuania
anton.popov@chgf.vu.lt

An immunosensor is a type of biosensor that uses an antigen-antibody interaction to detect and measure the presence or concentration of a specific analyte, such as a protein, virus, or bacteria. Currently, there is a significant focus on utilizing various nanostructures in the development of immunosensors. Using these materials, the analytical performance of immunosensors can be significantly improved [1–3].

This study presents the application of various nanostructures to improve the analytical performance of immunosensors. Different types of immunosensors based on various optical and electrochemical transducers are considered.

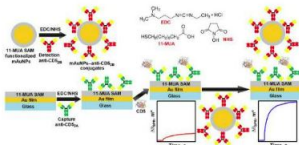


Fig. 1. Schematic illustration of SPR sensor signal enhancement using antibody-functionalized gold-coated magnetic nanoparticles [2]

Acknowledgments: This work is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 778157 CanBioSe.

Keywords: nanostructures, immunosensors, sensitivity.

References:

1. A. Popov et al. *Chemosensors* **9** p. 85 (2021)
2. A. Kausaite-Minkstimiene et al. *ACS Applied Materials & Interfaces* **14** (18) p. 20720–20728 (2022)
3. A. Popov et al. *International Journal of Molecular Sciences* **23** p. 12626 (2022)