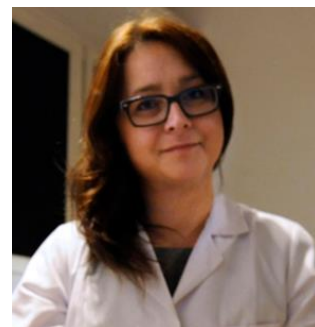


Curriculum Vitae

dr hab. Agnieszka Michota-Kamińska, Professor in the Institute of Physical Chemistry, Polish Academy of Sciences. Head of the “Plasmonic nanostructures for bio-spectroscopic analysis” group (www.bio-sers.com).

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Date of Birth: 12.01.1975

Marital status: married, three children.

Education and Degrees:

1994-1999 Undergraduate studies at the Department of Chemistry, University of Warsaw. M.Sc. in Physical Chemistry, Master thesis "*The spectroscopic investigation of the donor-acceptor complexes*",

2000 - 2004 Post-graduate studies at the Department of Chemistry, University of Warsaw; Ph. D. thesis "*The influence of the intermolecular interactions on the structure of biofunctional thiols adsorbed on Ag and Au surface*".

2017- D.Sc, (habilitation), Institute of Physical Chemistry PAN, Warsaw, Poland

Modified plasmonic nanostructures for spectroscopy analysis of the selected compounds and biological systems relevant to medical diagnostics.

Scientific career:

2005-2007 Adjunct at the Department of Chemistry, University of Warsaw,

2007-2008 Post-Doctoral Researcher in the School of Chemical Science, Dublin City University, Ireland.

2008- Employed as an adjunct in the Institute of Physical Chemistry, Polish Academy of Sciences.

2017- present as a Professor in the Institute of Physical Chemistry, Polish Academy of Sciences. Head of the “Plasmonic nanostructures for bio-spectroscopic analysis” group.

Summary of scientific achievements: (Web of Science, January 12, 2020).

Number of publications (Web of Science Master Journal List): 60

Citation: 1565

Hirsch Factor: 20

Students and PhD students Supervisor: 10 and 5

Organizations of international conferences: 2

Participation in international conferences: 45

Invited lectures: 16

Patents: 9

Patent applications: 7

Head/main investigator of the projects/grants:

- 1) Grant of the Foundation for Polish Science, Team-Tech (POIR.04.04.00-00-4210/17-00): "*An future Raman diagnostic device (FORMI) for the detection of pathogenic bacteria in medical and environmental samples*", IChF PAN, Warsaw, 2018-2021 (**head of the grant**).
- 2) Grant of the National Science Centre, **OPUS** ((UMO-2017/25 / B / ST4 / 011909) "*Marker-free analysis of circulating cancer cells in the blood using surface-enhanced Raman spectroscopy coupled with microfluidics - a new approach to "liquid biopsy"*", IChF PAN, Warsaw, 2018-2021 (**head of the grant**).
- 3) Grant of the National Science Centre, **OPUS** (UMO-2015/17/B/ST4/04128), „*Functionalized plasmonic-based nanostructures for multiplex analysis of immune markers in microfluidics systems*”. Institute of Physical Chemistry PAS, Warsaw, 2016-2019 (**head of the grant**).

- 4) Grant of the Foundation for Polish Science, **POMOST**, (POMOST/2010-2/10), „*Surface enhanced Raman spectroscopy (SERS) platforms for molecular diagnostics*”. Institute of Physical Chemistry PAS, Warsaw, 2010-2014 (**head of the grant**).
- 5) Grant of the Ministry of Science and Higher Education of Poland, **Iuventus plus** (IP 2010025970), „*Detection of neurotransmitters using a platform for surface enhanced Raman spectroscopy based on Au nanoparticles*”. Institute of Physical Chemistry PAS, Warsaw, 2011-2012 (**head of the grant**).
- 6) Grant of the National Centre for Research and Development, (PBS2/A1/8/2013), „*Development of commercial production methods of SERS substrates for ultra-sensitive and rapid biomedical analysis*”, 2013-2015 (**contractor and leader of one task of the project**).
- 7) Grant NOBLESSE - „*Nanotechnology, Biomaterials and Alternative Energy Source for ERA integration*” (European Commission - Research: The Seventh Framework Programme, Capacities), raising the scientific level of the Institute, integration and cooperation with prominent European research units; Institute of Physical Chemistry PAS, Warsaw, 2011 - 2014 (**contractor and vice-leader of one of research project tasks**).
- 8) Grant of the Ministry of Science and Higher Education of Poland „*Quantum semiconductor nanostructures for applications in biology and medicine - Development and commercialization of a new generation of molecular diagnostics based on new Polish semiconductor devices*”. Operational Programme Innovative Economy 2007-POIG.01.01.02-00-008/08; Institute of Physical Chemistry PAS, Warsaw 2007-2014 (**vice-leader and contractor of one of the main tasks of the project**).
- 9) Grant of Faculty of Chemistry, Warsaw University, (501/68-BW-172113) „*Immobilization of galactose oxydase on thiols-coated Au and Ag surfaces*”. Department of Chemistry, Warsaw University, 2006-2007 (**head of the grant**).

National and international collaborations:

Faculty of Chemistry, Warsaw University, Warsaw

Faculty of Biology, Warsaw University Warsaw

School of Chemical Sciences, Dublin City University, Dublin

Department of Immunology, Medical University of Warsaw

Institute of Physics, Polish Academy of Sciences, Warsaw, Poland

Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland

National Medicines Institute in Warsaw

List of the most important publications from last 10 years:

1. J. Paczesny, **A. Kamińska***, W. Adamkiewicz, K. Winkler, K. Sozanski, M. Wadowska, I. Dziecielewski, R. Hołyst, “*Three Steps of Hierarchical Self Assembly Towards Stable and Efficient SERS Platform*” **Chemistry of Materials**, 24, 3667- 3669 (2012).
2. A. Sivanesan, E. Witkowska, W. Adamkiewicz, Ł. Dziewit, **A. Kamińska***, J. Waluk, “*Nanostructured Silver-Gold Bimetallic SERS Substrate for Selective Identification of Bacteria in Human Blood*”, **Analyst** 139, 1037-43 (2014).
3. J. L. Weyher, I. Dziecielewski, **A. Kamińska**, G. Nowak and R. Hołyst, “*GaN-based platforms with Au-Ag alloyed metal layer for surface enhanced Raman scattering*”, **Applied Physics Letters** 112, 114327, (2012)
4. **A. Kamińska***, I. Dziecielewski, J. L. Weyher, J. Waluk, S. Gawinkowski, V. Sashuk, M. Fiałkowski, M. Sawicka, T. Suski, S. Porowski and R. Hołyst “*Highly reproducible, stable and multiply-regenerated Surface-Enhanced Raman Scattering substrate for biomedical applications*”, **Journal of Material Chemistry**, 21, 8662 (2011)
5. **A. Kamińska***, R. Hołyst “*Immobilization of Galactose Oxidase on Self- Assembled Monolayers of Thiols on Au and Ag Surfaces*”, **Journal of Raman Spectroscopy**, 43, 959–962, (2012).
6. T. Szymborski, E. Witkowska, W. Adamkiewicz, J. Waluk and **A. Kaminska*** “*Electrospun polymer mat as a SERS platform for immobilization and detection of bacteria from fluids*“, **Analyst**, **139**, 5061-5064 (2014).
7. S. Gawinkowski, **A. Kamińska**, T. Roliński, J. Waluk, “*New algorithm for identification of components in a mixture: application to Raman spectra of solid amino acids*”, **Analyst**, 139, 5755-5764 (2014).
8. A. Sivanesan, W. Adamkiewicz, G. Kalaivani, **A. Kamińska***, J. Waluk, R. Hołyst, E. L Izake, *Towards improved precision in the quantification of surface-enhanced Raman scattering (SERS) enhancement factors: a renewed approach*” **Analyst**, 140, 489-496 (2015).

9. **A. Kamińska***, A. A. Kowalska, D. Snigurenko, E. Guziejewicz, J. Lewiński, J. Waluk, "ZnO oxide films for ultrasensitive, rapid, and label-free detection of neopterin by surface-enhanced Raman spectroscopy" **Analyst** 140, 5090-5098 (2015).
10. A. Kowalska, **A. Kamińska**, W. Adamkiewicz, E. Witkowska and M. Tkacz, "Novel highly sensitive Cu-based SERS platforms for biosensing applications", **J. Raman Spectrosc.**, 46, 428–433 (2015).
11. **A. Kamińska***, A. Kowalska, P. Albrycht, and J. Waluk, "The ABO blood groups antigen-antibody interactions studied by SERS spectroscopy: towards the blood group typing" **Analytical Methods** 8, 1461-1463 (2016).
12. **A. Kamińska***, E. Witkowska, K. Winkler, I. Dzieścielewski, J. L. Weyher, and J. Waluk "Detection of Hepatitis B virus antigen from human blood: SERS immunoassay in a microfluidic system", **Biosensors and Bioelectronics** 66,461–467 (2015).
13. **A. Kamińska***, E. Witkowska, A. Kowalska, A. Skoczyńska, I. Gawryszewska, E. Guziejewicz, D. Snigurenko, J. Waluk, "Highly efficient SERS-based detection of cerebrospinal fluid neopterin as a diagnostic marker of bacterial infection" **Anal Bioanal Chem.**, 408, 4319–4327, (2016).
14. **A. Kamińska***, A. Kowalska, E. Witkowska, A. Skoczyńska, P. Ronkiewicz, T. Szyborski, J. Waluk, "Rapid detection and identification of bacterial meningitis pathogens in ex vivo clinical samples by SERS method and principal component analysis" **Anal. Methods**, 8, 4521-4529, (2016).
15. E. Witkowska*, D. Korsak, A. Kowalska, M. Książopolska-Gocalskaa, J. Niedziółka-Jönsson, E. Roźniecka, W. Michałowicz, P. Albrycht, M. Podrażka, R. Hołyst, J. Waluk, **A. Kamińska***, "Surface-enhanced Raman Spectroscopy introduced to the International Standard Organization (ISO) regulations as a novel and alternative method for detection and identification of pathogens in food industry" **Anal Bioanal Chem.**, 409(6): 1555–1567, (2017).
16. **A. Kamińska**, M. Sprynskyy, K. Winkler, T. Szyborski, "Ultrasensitive SERS immunoassay based on diatom biosilica for detection of interleukins in blood plasma", **Anal Bioanal Chem**, 409(27):1-11, (2017).
17. **A. Kamińska***, K. Winkler, A. Kowalska, E. Witkowska, T. Szyborski, A. Janeczek, J. Waluk, "SERS-based Immunoassay in a Microfluidic System for the Multiplexed Recognition of Interleukins from Blood Plasma: Towards Picogram Detection", **Scientific Reports**,7(1):10656, (2017).
18. **A. Kamińska**, T. Szyborski, E. Witkowska, E. Kijeńska-Gawrońska, W. Świeszkowski, K. Niciński, J. Trzińska-Danielewicz and A. Girstun, "Detection of Circulating Tumor Cells Using Membrane-Based SERS Platform: A New Diagnostic Approach for 'Liquid Biopsy'", **Nanomaterials** 9(3), 366, (2019).

Patents and patents applications

Patents

- 1P. *Platform for Surface Enhanced Raman Spectroscopy*", Patent, 219706 (2014) Poland; IN-564/MUM/2011 India; Patent UA 109104 (2014), Ukraine; RU 20111110372 Russia; Patent US 8,531,660 (2014) USA; I. Dzieścielewski, R. Hołyst, **A. Michota-Kamińska**, S. Porowski, T. Suski, J. Weyher.
- 2P. *Method for deposition of metal nanoparticles onto surface, the surface obtained by this process and its use*, countries: Patent CH 703728, 2014, Switzerland; PL 220942, 2014, Poland J. Niedziółka-Jönsson, I. Kamińska, **A. Michota-Kamińska**, M. Opałło, R. Hołyst.
- 3P. *Method of hydrophilic coating of solid gold layer with a developed surface*, Patent-219899, Poland, 2014, Patent CH 703612, 2014, Switzerland, K. Winkler, M. Fiałkowski, **A. Michota-Kamińska**, R. Hołyst.
- 4P. *Application of borohydride for purification of the Surface Enhanced Raman Spectroscopy platforms containing a layer of gold*, Patent; CH 703842, 2014, V. Sashuk, A. Michota-Kamińska, R. Hołyst, M. Fiałkowski.
- 5P. *The solid surface covering method by two-dimensional network of nanoparticles and a solid surface covered by this method*, Patent, PL 218683, Poland (2015), J. Paczesny, K. Sozański, A. Żywociński, W. Adamkiewicz, I. Dzieścielewski, K. Winkler, **A. Michota-Kamińska**, R. Hołyst.
- 6P. *SERS measurement platform and a method for its manufacture*, Patent CH 703728 (2015) ,Patent PL 218683, Poland, J. Paczesny, K. Sozański, A. Żywociński, W. Adamkiewicz, I. Dzieścielewski, K. Winkler, **A. Michota-Kamińska**, R. Hołyst.
- 7P. *Method for depositing metal nanoparticles on the surface and platform to the measurements SERS or LSPR*, Patent, PL 220820, Poland, Patent NL 2009442, 2014, Netherlands, M. Siek, J. Niedziółka-Jönsson, M. Opałło, **A. Michota-Kamińska**, A. Kelm, R. Hołyst
- 8P. *The platform for testing chemicals and microorganisms via Surface Enhanced Raman Spectroscopy and method of preparation of the platform*. 2018, P-409210, Poland, T. Szyborski, E. Witkowska, W. Adamkiewicz, J. Waluk, **A. Michota-Kamińska**

9P. *Method of fabricating copper platform for surface enhanced Raman scattering measurements and copper platform for surface enhanced Raman scattering measurement*, 2013, P-404988 Poland, A. Kowalska, **A. Michota-Kamińska**, W. Adamkiewicz, M. Tkacz.

Patents applications

10P. *The method of uniform coating of the silver surface by electrochemically roughened gold layer with a highly developed surface and the platform for measuring the surface-enhanced Raman effect, in particular for bacteria*, 2013, P-402089, E. Witkowska, S. Arumugam, **A. Michota-Kamińska**, W. Adamkiewicz, J. Waluk.

11.P. *A method for preparing a platform for testing of chemicals via surface-enhanced Raman spectroscopy (SERS) and platform obtained by this method*, 2013, P-406026E. Guziejewicz, D. Snigurenko, T. Szymborski, E. Witkowska, and **A. Michota-Kamińska**

12.P. *The platform for testing chemicals and microorganisms via Surface Enhanced Raman Spectroscopy and method of preparation of the platform*. 2014, P-409210, T. Szymborski, E. Witkowska, W. Adamkiewicz, J. Waluk, **A. Michota-Kamińska**

13.P. *The method of detection of bacteria: Salmonella spp, Cronobacter spp oraz Listeria monocytogenes from food samples*, 2016, P-416927, Poland, E. Witkowska, D. Korsak, M. Książkowska-Gocalska, **A. Michota-Kamińska**

14.P. *"Platform for surface-enhanced Raman effect, method of preparing such a platform, method for determining substances and / or microorganisms using such a platform, use of such a platform for direct detection and / or identification of substances and / or microorganisms, especially bacteria, using the surface-enhanced Raman effect technique or in combination with electrochemical measurements"*. 2018P. 426643, Poland, K. Niciński, E. Witkowska, D. Korsak, J. Trzcińska-Danilewicz, A. Girstun, T. Szymborski, **A. Michota-Kamińska**

15.P. *"Method for detecting thermotolerant bacteria of the genus Campylobacter spp. in food."* 2019, P.430701, Poland, E. Witkowska, K. Niciński, B. Dominiak, D. Korsak, J. Waluk, **A. Michota-Kamińska**

16.P. *"Flexible platform for surface-enhanced Raman effect, method of preparing such a platform, method of determining substances and / or microorganisms using such a platform, using such a platform for direct detection and / or identification of substances and / or microorganisms, especially bacteria and cancer cells using the technique surface enhanced Raman effect "* 2019 P.430767, Poland, M. Czaplicka, A. Nowicka, T. Szymborski, A. Kowalska, J. Trzcińska-Danilewicz, A. Girstun, **A. Michota-Kamińska**.

Awards

Medal: 42-nd International Exhibition of Inventions of Geneva 2014; Silver Medal "Platform for SERS and method of its fabrication"; W. Adamkiewicz, J. Paczesny, K. Sozański, R. Hołyst, I. Dziecielewski, K. Winkler, **A. Michota-Kamińska** and A. Żywociński.

Polish Intelligent Development Award in the category "Future Scientist 2019" for the implementation of two projects: (I) "Marker-free analysis of circulating cancer cells in the blood using surface-enhanced Raman spectroscopy coupled with microfluidics - a new approach to" liquid biopsy. "; (II) Grant of the Polish Science Foundation, Team Tech, "Innovative Raman Diagnostic Device (FORMI) for the detection of pathogenic bacteria in medical and environmental samples"

Member of: the Scientific Council of the National Medicines Institute and Institute of Physical Chemistry PAS.