

CV - Agnieszka Michota-Kamińska

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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*".

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

Summary of scientific achievement, (Web of Science, February 12, 2016).

Number of publications: (Philadelphian list): 42

Summary Impact Factor (IF according to Journal Database): 148.617

Citation : 820

Hirsch Factor: 17

Student Supervisor: 6

PhD student co-supervisor: 1

Organizations of international conferences: 2

Participation in international conferences: 27

Invited lectures: 15

Patents: 10

Patent applications: 5

Head/main investigator of the projects/grants:

- 1) 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**).
- 2) 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**).
- 3) 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**).
- 4) 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 of the four tasks of the project**).
- 5) 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 the four research project tasks**).
- 6) 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**).

- 7) 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. A. Kaminska, O. Inya-Agha, R. J. Forster and T. E. Keyes, “*Protein compatible Metal Nanoparticle Arrays for Surface-Enhanced Raman Spectroscopy*”, **Chem. Chem. Phys.**, 10,4172- 4175 (2008);
2. K. Winkler, A. Kaminska, T. Wojciechowski, R. Holyst, M. Fialkowski, “*Gold Micro-Flowers: One-Step Fabrication of Efficient, Highly Reproducible Surface-Enhanced Raman Spectroscopy Platform*”, **Plasmonics** 6, 697-704 (2011).
3. A. Kaminska, R. J. Forster and T. E. Keyes, “*The impact of adsorption of bovine pancreatic trypsin inhibitor on CTAB-protected gold nanoparticle arrays: a Raman spectroscopic comparison with solution denaturation*”, **Journal of Raman Spectroscopy**, 41, 130-1334 (2009).
4. M. Siek, A. Kaminska*, A. Kelm, T. Rolinski, R. Holyst, M. Opallo and J. Niedziolka-Jönsson, “*Electrodeposition for Preparation of Efficient SERS-Active Silver Nanoparticle Substrates for Neurotransmitter Detection*”, **Electrochimica Acta**, 89, 284–291(2013).
5. , A. Kamińska*, A. Sivanesan, E. Witkowska, J. Gołąb, M. Winiarska, D. Nowis, I. Dzieścielewski, J. L. Weyher and J. Waluk, “*Detection of DNA Mutations Using Novel Surface-Enhanced Raman Spectroscopy (SERS) Diagnostic Platform*”, *J. Chem. Chem. Eng.* 7, 972-978 (2013).
6. .J. Paczesny, A. Kaminska*, W. Adamkiewicz, K. Winkler, K. Sozanski, M. Wadowska, I. Dzieścielewski, R. Holyst, “*Three Steps of Hierarchical Self Assembly Towards Stable and Efficient SERS Platform*” **Chemistry of Materials**, 24, 3667- 3669 (2012).
7. 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).
8. J. L. Weyher, I. Dzieścielewski, A. Kamińska, G. Nowak and R. Holyst, “*GaN-based platforms with Au-Ag alloyed metal layer for surface enhanced Raman scattering*”, **Applied Physics Letters** 112, 114327, (2012)
9. A. Kamińska*, I. Dzieścielewski, J. L. Weyher, J. Waluk, S. Gawinkowski, V. Sashuk, M. Fiałkowski, M. Sawicka, T. Suski, S. Porowski and R. Holyst “*Highly reproducible, stable and multiply-regenerated Surface-Enhanced Raman Scattering substrate for biomedical applications*”, **Journal of Material Chemistry**, 21, 8662 (2011)
10. A. Kamińska*, R. Holyst “*Immobilization of Galactose Oxidase on Self- Assembled Monolayers of Thiols on Au and Ag Surfaces*”, *Journal of Raman Spectroscopy*, 43, 959–962, (2012).
11. 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).
12. S. Gawinkowski, A. Kaminska, 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).
13. A. Sivanesan, W. Adamkiewicz, G. Kalaivani, A. Kamińska*, J. Waluk, R. Holyst, 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).
14. A. Kamińska*, A. A. Kowalska, D. Snigurenko, E. Guziewicz, 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).
15. A. Kowalska, A. Kaminska, W. Adamkiewicz, E. Witkowska and M. Tkacz, “*Novel highly sensitive Cu-based SERS platforms for biosensing applications*”, **J. Raman Spectrosc.**, 46, 428–433 (2015).
16. 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).
17. 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).

18. A. Kamińska*, E. Witkowska, A. Kowalska, A. Skoczyńska, I. Gawryszewska, E. Guzewicz, D. Snigurenko, J. Waluk, "Highly efficient SERS-based detection of cerebrospinal fluid neopterin as a diagnostic marker of bacterial infection" **Anal Bioanal Chem.**, 2016, 408, 4319–4327.
19. 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**, 2016, 8, 4521-4529.
20. E. Witkowska*, D. Korsak, A. Kowalska, M. Książopolska-Gocalska, 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.**, DOI: 10.1007/S00216-016-0090-z.
21. E. Witkowska*, T. Jagielski, A. Kowalska, J. Waluk, A. Kamińska*, "Detection and Identification of Fungi Causing Human Infections using Surface-enhanced Raman Scattering Method" **Analytical Methods**, DOI: 10.1039/C6AY02957D.
22. E. Witkowska, T. Szyborski, A. Kamińska and J. Waluk „Polymer mat prepared via Forcespinning™ as a SERS platform for immobilization and detection of bacteria from blood plasma”, **Materials Science and Engineering: C**, DOI: 10.1016/j.msec.2016.10.027

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; CN 201110071515.7 China; JP 2011-062201Japan; KR 10-2011-0025571 Korea, I. Dzieścielewski, R. Hołyst, A. 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. Kaminska, 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. 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. 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. 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. 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. Kamińska, A. Kelm, R. Hołyst

PATENT APPLICATIONS

- 8P. *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
- 9P. *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. Kamińska, W. Adamkiewicz, J. Waluk
- 10P. *A method for preparing a platform for testing of chemicals via surface-enhanced Raman spectroscopy (SERS) and platform obtained by this method*, 2013, P-406026 E. Guzewicz, D. Snigurenko, T. Szyborski, E. Witkowska, and A. Kamińska-Michota
- 11.P. *The platform for testing chemicals and microorganisms via Surface Enhanced Raman Spectroscopy and method of preparation of the platform*. 2014, P-409210, T. Szyborski, E. Witkowska, W. Adamkiewicz, J. Waluk, A. Michota - Kamińska
- 12P *The method of the detection of Salmonella spp. Cronobacter spp and Listeria monocytogenes from food*, 2016, P-416927, E. Witkowska, D. Korsak, M. Książopolska, A. Kamińska

Awards: Silver 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. Dzieścielewski, K. Winkler, A. Kamińska and A. Żywociński.