

CURRICULUM VITAE

1. Personal information

Name: Andris
Surname: Šutka
Sex: Male
Date of Birth: 11th February, 1986
Work address: Paula Valdena 3/7, Rīga, Latvija, LV-1048
Phone: +37126138155
e-mail: andris.sutka@rtu.lv

2. Work experience

12/2018 – till now Associate Professor, Faculty of Applied Chemistry and Materials Science, Riga Technical University, Riga, Latvia

03/2017 – till now Leading researcher, Head of the Laboratory, Research Laboratory of Functional Materials Technologies, Riga Technical University, Riga, Latvia

03/2016 – 12/2018 Researcher, Institute of Physics, University of Tartu, Tartu, Estonia

09/2013 – 03/2017 Leading researcher, Docent, Institute of Silicate Materials, Riga Technical University, Riga, Latvia

03/2014 – 02/2016 Postdoctoral researcher, Institute of Physics, University of Tartu, Tartu, Estonia

09/2013 – 06/2015 Researcher, Estonian Nanotechnology Competence Centre, Tartu, Estonia

09/2009 – 09/2013 Researcher, Docent, Institute of Silicate Materials, Riga Technical University, Riga, Latvia

05/2006 – 04/2009 Lab Assistant, Institute of Polymer Materials, Riga Technical University, Riga, Latvia

3. Education

09/2009 – 12/2012 Doctor of Engineering Sciences in Chemical Engineering, Faculty of Materials Science and Applied Chemistry, Riga Technical University, Riga, Latvia

09/2007 – 06/2009 Engineer science master degree in Materials Science, Faculty of Materials Science and Applied Chemistry, Riga Technical University, Riga, Latvia

09/2004 – 06/2007 Engineer science bachelor degree in Materials Science, Faculty of Materials Science and Applied Chemistry, Riga Technical University, Riga, Latvia

4. Work related skills

Job-related skills Solution combustion synthesis; solvothermal synthesis; sol-gel synthesis; photodeposition; defect chemistry; semiconductor gas sensors; photocatalysis; photoelectrochemical cells; polymer processing; polymer nanocomposites; electro-optics; stimuli responsive functional nanomaterials; degenerated semiconductor nanocrystals; triboelectric nanogenerators; piezoelectric nanogenerators.

Supervised thesis 4 bachelor thesis in Materials Science and 1 bachelor thesis in Physics

2 master thesis in Materials Science
1 PhD thesis: M. Vanags (2015) Synthesis and Properties of Nanostructured Iron Oxide Photoanodes; Mechanisms of the Pulse Electrolysis and Photo-Electrolysis, Riga Technical University, Riga, Latvia
PhD Thesis under supervision

5. Funding Attracted

09/2018 – 08/2021 Latvian Council of Science, Plasmonic oxide quantum dots for energy saving smart windows, 299 512.00 EUR (Project leader)
03/2018 – 02/2021 ERA.Net RUS Plus, State Education Development Agency Republic of Latvia, Novel Heteroatom-doped Nanocarbon Catalysts for Fuel Cell and Metal-air Battery Applications, 188 000.00 EUR (Project leader in Latvia)
07/2018 – 06/2021 Investment and Development Agency of Latvia, KC-PI-2017/10, Pharmaceutical Wastewater Treatment, 333 000.00 EUR (Project leader)
03/2017 – 02/2020 Central Finance and Contracting Agency of the Republic of Latvia, 1.1.1.1/16/A/013, Hybrid energy harvesting systems, 647 361.38 EUR (Project leader)
03/2016 – 12/2018 Estonian Research Council, PUT grant (PUT1096) Photonic hybrids with tunable optical properties, 169 200.00 EUR (Project leader)
03/2014 – 02/2016 Estonian Research Council, PostDoc grant (PUTJD29) Dielectric anisotropy and electrokinetic manipulation of 1D and 2D nano-objects in viscoelastic matrix, 75 800.00 EUR (Project leader)
09/2009 – 07/2013 ESF PhD Scholarship ESF1DP11212/005, 40 045.60 EUR

6. Awards

2009 Graduated Master with honours, Riga Technical University, Latvia
2009 Researcher of the Year, Association of Latvian Young Scientists, Latvia
2014 Ludvigs and Maris Jansons Latvian Academy of Science Award, Latvia
2014 Young Scientist of the Year, Riga Technical University, Latvia
2017 Travel Award, The Surface Science Society of Japan, Japan
2018 JCI TOYP Latvia award in section "Science and technology development", Latvia
2018 Latvenergo and Latvian Academy of Science Award "Significant contribution to Energetics", Latvia
2018 Latvian Academy of Science Award "Most significant achievement in Applied Sciences in Latvia in year 2018", Latvia

7. Publications

1. A. Šutka, M. Järvekülg, K.A. Gross, M. Kook, T. Käämbre, M. Visnapuu, G. Trefalt, A. Šutka, Visible light to switch-on desorption from goethite, *Nanoscale*, 11 (2019) 3794–3798.
2. L. Lapčinskis, A. Linarts, M. Knite, I. Gornevs, J. Blums, A. Šutka, Solid-state supercapacitor application for pressure sensing, *Appl. Surf. Sci.*, 474 (2019) 91–96.

3. U. Joost, A. Šutka, M. Oja, K. Smits, N. Döbelin, A. Loot, M. Järvekülg, M. Hirsimäki, M. Valden, E. Nõmmiste, Reversible photodoping of TiO₂ nanoparticles for photochromic applications, *Chem. Mater.* 30 (2018) 8968–8974.
4. S. Vlassov, S. Oras, M. Antsov, I. Sosnin, B. Polyakov, A. Šutka, M. Yu. Krauchanka, L. M. Dorogin, Adhesion and mechanical properties of PDMS-based materials probed with AFM: a review, *Rev. Adv. Mater. Sci.* 56 (2018) 62-78.
5. A. Šutka, M. Järvekülg, K.A. Gross, Photocatalytic nanoheterostructures and chemically bonded junctions made by solution-based approaches, *Crit. Rev. Solid State*, (2018) 10.1080/10408436.2018.1485549
6. A. Šutka, M. Järvekülg, A. Šutka, I. Heinmaa, U. Mäeorg, K. Smits, M. Timusk, Mechanical reinforcement of electrospun poly(vinyl alcohol) by α-FeOOH nanowires, *Polym. Comp.*, 39 (2018) 2461-2468.
7. A. Šutka, K. Mālnieks, A. Linarts, M. Timusk, V. Jurkāns, I. Gorņevs, J. Blūms, A. Bērziņa, U. Joost, M. Knite, Inversely polarised ferroelectric polymer contact electrodes for triboelectric-like generators from identical materials, *Energy Environ. Sci.*, 11 (2018) 1437-1443.
8. A. Šutka, T. Käämbre, U. Joost, K. Kooser, M. Kook, R.F. Duarte, V. Kisand, M. Maiorov, N. Döbelin, K. Smits, Solvothermal synthesis derived Co-Ga codoped ZnO diluted magnetic degenerated semiconductor nanocrystals, *J. Alloy. Compd.*, 763 (2018) 164-172.
9. T. Käämbre, M. Vanags, R. Pärna, V. Kisand, R. Ignatans, J. Kleperis, A. Šutka, Yttrium-doped hematite photoanodes for solar water splitting: Photoelectrochemical and electronic properties, *Ceram. Int.*, 44 (2018) 13218–13225.
10. M. Visnapuu, M. Rosenberg, E. Truska, E. Nõmmiste, A. Šutka, A. Kahru, M. Rähn, H. Vija, K. Orupõld, V. Kisand, A. Ivask, UVA-induced antimicrobial activity of ZnO/Ag nanocomposite covered surfaces, *Colloid. Surface. B*, 169 (2018) 222–232.
11. A. Šutka, M. Timusk, U. Joost, R. Ignatans, M. Maiorov, Switchable light reflectance in dilute magneto-optical colloids based on nickel ferrite nanowires, *e-Journal Surf. Sci. Nanotechnol.*, 16 (2018) 119-121.
12. A. Šutka, M. Vanags, U. Joost, K. Šmits, J. Ruža, J. Ločs, J. Kleperis, T. Juhna, Aqueous synthesis of Z-scheme photocatalyst powders and thin-film photoanodes from earth abundant elements, *J. Environ. Chem. Eng.*, 6 (2018) 2606–2615.
13. J. Metsik, M. Timusk, A. Šutka, M. Mooste, K. Tammeveski, U. Mäeorga, In situ investigation of poly(3,4-ethylenedioxythiophene) film growth during liquid phase deposition polymerization, *Thin Solid Films*, 653 (2018) 274–283.
14. A. Šutka, J. Ruža, M. Järvekülg, A. Linarts, K. Mālnieks, V. Jurkāns, I. Gorņevs, J. Blūms, K. Rubenis, M. Knite, Triboelectric nanogenerator based on immersion precipitation derived highly porous ethyl cellulose, *J. Electrostat.*, 92 (2018) 1-5.
15. A. Šutka, U. Joost, M. Järvekülg, M. Timusk, Humidity influence on optical properties of nanowire colloids with modulated visual response to electrostatic charge, *Colloid Interf. Sci. Commun.*, 22 (2018) 34-37.
16. A. Šutka, M. Timusk, J. Metsik, J. Ruža, M. Knite, U. Mäeorg, PEDOT electrodes for triboelectric generator devices, *Org. Electron.*, 51 (2017) 446-451.

17. A. Šutka, N. Döbelin, U. Joost, K. Smits, V. Kisand, M. Maiorov, K. Kooser, M. Kook, R.F. Duarte, T. Käämbre, Facile synthesis of magnetically separable $\text{CoFe}_2\text{O}_4/\text{Ag}_2\text{O}/\text{Ag}_2\text{CO}_3$ nanoheterostructures with high photocatalytic performance under visible light and enhanced stability against photodegradation, *J. Environ. Chem. Eng.*, 5 (2017) 3455-3462.
18. U. Joost, A. Šutka, M. Visnapuu, A. Tamm, M. Lembinen, M. Antsov, K. Utt, K. Smits, E. Nõmmiste, V. Kisand, Colorimetric gas detection by the varying thickness of a thin film of ultrasmall PTSA-coated TiO_2 nanoparticles on a Si substrate, *Beilstein J. Nanotechnol.*, 8 (2017) 229-236.
19. A. Šutka, M. Antsov, M. Järvekülg, M. Visnapuu, I. Heinmaa, U. Mäeorg, S. Vlassov, A. Šutka, Mechanical properties of individual fiber segments of electrospun lignocellulose-reinforced poly(vinyl alcohol), *J. Appl. Polym. Sci.*, 134 (2017) 44361
20. M. Vahtrus, A. Šutka, B. Polyakov, S. Oras, M. Antsov, N. Doebelin, R. Lõhmus, E. Nõmmiste, S. Vlassov, Effect of cobalt doping on the mechanical properties of ZnO nanowires, *Mater. Charact.*, 121 (2016) 40-47.
21. A. Šutka, M. Timusk, A. Loot, U. Joost, T. Käämbre, Polarizable Nanowire Colloids for Power Free Naked Eye Optical Detection of Electrostatic Surface Charges, *Adv. Mater. Technol.*, 1 (2016) 1600154
22. M. Timusk, A. Kuus, K. Utt, T. Kangur, A. Šutka, M. Järvekülg, M. Knite, Thick silica foam films through combined catalytic decomposition of H_2O_2 and sol-gel processes, *Mater. Design*, 111 (2016) 80-87.
23. A. Šutka, T. Käämbre, R. Pärna, I. Juhnevica, M. Maiorov, U. Joost, V. Kisand, Co doped ZnO nanowires as visible light photocatalysts, *Solid State Sci.*, 56 (2016) 54-62.
24. S. Vlassov, B. Polyakov, S. Oras, M. Vahtrus, M. Antsov, A. Šutka, K. Smits, L.M. Dorogin, R. Lõhmus, Complex tribomechanical characterization of ZnO nanowires: nanomanipulations supported by FEM simulations, *Nanotechnol.*, 27 (2016) 335701.
25. A. Šutka, T. Käämbre, R. Pärna, N. Döbelin, M. Vanags, K. Smits, V. Kisand, Ag sensitized TiO_2 and NiFe_2O_4 three-component nanoheterostructures: synthesis, electronic structure and strongly enhanced visible light photocatalytic activity, *RSC Adv.*, 6 (2016) 18834-18842
26. A. Šutka, M. Kodu, R. Pärna, R. Saar, I. Juhnevica, R. Jaaniso, V. Kisand, Orthorhombic CaFe_2O_4 : A promising p-type gas sensor, *Sens. Actuat. B: Chem.*, 224 (2016) 260-265.
27. A. Šutka, K.A. Gross, Spinel ferrite oxide semiconductor gas sensors, *Sens. Actuat. B: Chem.*, 222 (2016) 95-105.
28. A. Šutka, M. Timusk, V. Kisand, A. Šutka, E. Dauksta, Fabrication of Lead Titanate PbTiO_3 nanofiber mats via electrospinning, *Int. J. App. Ceram. Tec.*, 12 (2015) E117-E121.
29. S. Leinberg, V. Kisand, A. Šutka, K. Saal, R. Lõhmus, U. Joost, M. Timusk, E. Nõmmiste, Switchable optical transmittance of TiO_2 submicron-diameter wire suspension-based "smart window" device, *Opt. Mater.*, 46 (2015) 418-422.
30. M. Vahtrus, A. Šutka, S. Vlassov, A. Šutka, B. Polyakov, R. Saar, L. Dorogin, R. Lõhmus, Mechanical characterization of TiO_2 nanofibers produced by different electrospinning techniques, *Mater. Charact.* 100 (2015) 98-103.
31. M. Vanags, A. Šutka, J. Kleperis, P. Shipkovs, Comparison of the electrochemical properties of hematite thin films prepared by spray pyrolysis and electrodeposition, *Ceram. Int.*, 41 (2015) 9024-9029.

32. A. Šutka, M. Timusk, N. Döbelin, R. Pärna, M. Visnapuu, U. Joost, T. Käämbre, V. Kisand, K. Saal, M. Knite, A straightforward and “green” solvothermal synthesis of Al doped zinc oxide plasmonic nanocrystals and piezoresistive elastomer nanocomposite, *RSC Adv.* 5 (2015) 63846-63852.
33. A. Sutka, M. Millers, M. Vanags, U. Joost, M. Maiorov, V. Kisand, R. Pärna, I. Juhnevica, Comparison of photocatalytic activity for different co-precipitated spinel ferrites, *Res. Cem. Intermediat.*, 41 (2015) 9439-9449.
34. A. Šutka, M. Timusk, M. Järvekülg, A. Loot, U. Joost, R. Lõhmus, K. Saal, Counterintuitive increase in optical scattering efficiency during negentropic orientational transition in dilute ZnO nanowire suspensions, *RSC Adv.*, 5 (2015) 104149-104154.
35. A. Sutka, A. Sutka, S. Gaidukov, M. Timusk, J. Gravitis, S. Kukle, Enhanced stability of PVA electrospun fibers in water by adding cellulose nanocrystals, *Holzforschung*, 69 (2015) 737-743.
36. A. Sutka, J. Gravitis, S. Kukle, A. Sutka, M. Timusk, Electrospinning of poly(vinyl alcohol) nanofiber mats reinforced by lignocellulose nanowhiskers, *Soft Mater.*, 13 (2015) 18-23.
37. A. Šutka, M. Millers, N. Döbelin, R. Pärna, M. Vanags, M. Maiorov, J. Kleperis, T. Käämbre, U. Joost, E. Nõmmiste, V. Kisand, M. Knite, Photocatalytic activity of anatase–nickel ferrite heterostructures, *Phys. Status Solidi A*, 212 (2015) 796-803.
38. A. Šutka, Rainer Pärna, Tanel Käämbre, Vambola Kisand, Synthesis of p-type and n-type nickel ferrites and associated electrical properties, *Physica B*, 456 (2015) 232-236.
39. A. Šutka, S. Lagzdina, T. Käämbre, R. Pärna, V. Kisand, J. Kleperis, M. Maiorov, A. Kikas, I. Kuusik, D. Jakovlevs, Study of the structural phase transformation of iron oxide nanoparticles from an Fe²⁺ ion source by precipitation under various synthesis parameters and temperatures, *Mater. Chem. Phys.*, 149-150 (2015) 473-479.
40. A. Šutka, N. Doebelin, Study of defects by Rietveld technique and gas response of excess-iron zinc ferrite, *J. Jpn. Soc. Powder Metallurgy*, 61 (2014) S81-S83.
41. A. Šutka, S. Leinberg, V. Kisand, K. Saal, R. Lõhmus, U. Joost, E. Nõmmiste, M. Timusk, Electro-optics of electrospun TiO₂ anatase submicron wire based dipole particle suspension device, *Opt. Mater.*, 37 (2014) 740-744.
42. A. Šutka, K. Saal, V. Kisand, R. Lõhmus, U. Joost, M. Timusk, TiO₂ nanowire dispersions in viscous polymer matrix: electrophoretic alignment and optical properties, *Nanotechnol.*, 25 (2014) 415703
43. A. Šutka, M. Stingaciu, D. Jakovlevs, G. Mezinskis, Comparison of different methods to produce dense zinc ferrite ceramics, *Ceram. Int.*, 40 (2014) 2519-2522.
44. A. Šutka, S. Lagzdina, I. Juhnevica, D. Jakovlevs, M. Maiorovs, Precipitation synthesis of magnetite Fe₃O₄ nanoflakes, *Ceram. Int.*, 40 (2014) 11437- 11440
45. A. Šutka, R. Pärna, J. Klepereis, T. Käämbre, I. Pavlovskā, V. Korsaks, K. Malnieks, L. Grinberga, V. Kisand, Photocatalytic activity of non-stoichiometric ZnFe₂O₄ under visible light irradiation, *Phys. Scripta*, 89 (2014) 044011.
46. A. Šutka, R. Pärna, G. Mezinskis, V. Kisand, Effects of Co ion addition and annealing conditions on nickel ferrite gas response, *Sens. Actuat. B: Chem.*, 192 (2014) 173-180.
47. A. Šutka, G. Mezinskis, M. Zamovskis, D. Jakovlevs, I. Pavlovskā, Monophasic ZnFe₂O₄ synthesis from a xerogel layer by auto combustion, *Ceram. Int.*, 39 (2013) 8499-8502.

48. A. Šutka, The role of stoichiometry on gas response of nanostructured sol-gel auto combustion derived nickel ferrite, *Sensor Lett.*, 11 (2013) 2010-2013.
49. A. Šutka, R. Pärna, M. Zamovskis, V. Kisand, G. Mezinskis, J. Kleperis, M. Maiorov, D. Jakovlev, Effect of antisite defects on magnetic properties of ZnFe₂O₄, *Phys. Status Solidi A*, 210 (2013) 1892-1897.
50. A. Šutka, G. Mezinskis, A. Lūsis, Electric and dielectric properties of nanostructured stoichiometric and excess-iron Ni-Zn ferrites, *Phys. Scripta*, 87 (2013) 025601
51. A. Šutka, G. Mezinskis, D. Jakovlevs, V. Korsaks, Sol-gel combustion synthesis of CdFe₂O₄ ferrite by using various reducing agents, *J. Aust. Ceram. Soc.*, 49 (2013) 136-140.
52. A. Šutka, J. Zavickis, G. Mezinskis, D. Jakovlevs, J. Barloti, Ethanol monitoring by ZnFe₂O₄ thin film obtained by spray pyrolysis, *Sens. Actuat. B: Chem.*, 176 (2013) 330-334.
53. A. Šutka, A. Borisova, J. Kleperis, G. Mezinskis, D. Jakovlevs, I. Juhnevica, Effect of nickel addition on colour on nanometer spinels zinc ferrite pigments, *J. Aust. Ceram. Soc.*, 48 (2012) 150-155.
54. A. Šutka, G. Strikis, G. Mezinskis, A. Lūsis, J. Zavickis, J. Kleperis, D. Jakovlevs, Properties of Ni-Zn ferrite thin films deposited using spray pyrolysis, *Thin Solid Films*, 526 (2012) 65-69.
55. A. Šutka, M. Stingaciu, G. Mezinskis, A. Lūsis, An alternative method to modify the sensitivity of p-type NiFe₂O₄ gas sensor, *J. Mater. Sci.*, 47 (2012) 2856-2863.
56. A. Šutka, G. Mezinskis, A. Lūsis, M. Stingaciu, Gas sensing properties of Zn doped p-type nickel ferrite, *Sens. Actuat. B: Chem.*, 171-172 (2012) 354-360.
57. A. Šutka, G. Mezinskis, A. Lūsis, D. Jakovlevs, Influence of iron non-stoichiometry on spinel zinc ferrite gas sensing properties, *Sens. Actuat. B: Chem.*, 171-172 (2012) 204-209.
58. A. Šutka, G. Mezinskis, Sol-gel auto-combustion synthesis of spinel ferrite nanomaterials, *Front. Mater. Sci.*, 6 (2012) 128-141.
59. A. Šutka, K.A. Gross, G. Mezinskis, G. Bebris, M. Knite, The effect of heating conditions on the properties of nano- and microstructured Ni-Zn ferrite, *Phys. Scripta*, 83 (2011) 025601.

8. Patents

1. A. Šutka, G. Mežinskis, "Method for increasing spinel ferrite gas sensitivity", LV 14372 A, 20.06.2011. Int. Cl: G01N27/1, C04B35/26, C04B35/622, C01G49/00.
2. A. Šutka, G. Mežinskis, "Novel spinel type ferrite gas sensor materials", LV 14467 B, 20.05.2012. Int. C01G49/08, C04B35/26, G01N27/12.
3. A. Šutka, M. Timusk, R. Lõhmus, K. Saal, V. Kisand, U. Joost, "Reversible transparency electro-optical suspended particle material", Owner: Tartu Ülikool; Priority number: UK1421451.4; Priority date: 3.12.2014.
4. A. Šutka, T. Juhna, "Fe₂O₃/Ca₂Fe₂O₅ photocatalyst system", PCT/IB2018/054657; Priority date: 26.06.2018

