

Publication List

2024

1. J. Park, A. Tesler, E. Gongadze, A. Iglíč, P. Schmuki, A. Mazare: **Nanoscale Topography of Anodic TiO₂ Nanostructures Is Crucial for Cell–Surface Interactions**. ACS Applied Materials & Interfaces 2024; 16(4): 4430–4438. <https://doi.org/10.1021/acscami.3c16033>

2023

2. E. Gongadze, C. Dighton, G. Nash, M. Moss, B. Hemingway, J. P. Belnoue, S. R. Hallett: **Thickness Control of Autoclave-Molded Composite Laminates**. ASME. *J. Manuf. Sci. Eng.* September 2023; 145(9): 091006. <https://doi.org/10.1115/1.4062581>

2022

3. N. Rawat, M. Benčina, E. Gongadze, I. Junkar, A. Iglíč: **Fabrication of antibacterial TiO₂ nanostructured surfaces using hydrothermal method**. ACS Omega, 7: 47070–47077, 2022. <https://doi.org/10.1021/acsomega.2c06175>

2021

4. E. Gongadze, L. Mesarec, S. Kralj, V. Kralj-Iglíč, A. Iglíč: **On the Role of Electrostatic Repulsion in Topological Defect-Driven Membrane Fission**. Membranes 2021, 11(11), 812, 2021.
5. J. Raval, E. Gongadze, M. Benčina, I. Junkar, N. Rawat, L. Mesarec, V. Kralj-Iglíč, W. Gózdź, A. Iglíč: **Mechanical and electrical interaction of biological membranes with nanoparticles and nanostructured surfaces**. Membranes 11, 533, 2021.

2020

6. M. Drab, E. Gongadze, V. Kralj-Iglíč, A. Iglíč: **Electric double layer and orientational ordering of water dipoles in narrow channels**, Entropy 22(9): 1054, 2020. DOI: 10.3390/e22091054

2019

7. Hwang, F. Riboni, E. Gongadze, A. Iglíč, J. Yoo, S. So, A. Mazare, P. Schmuki: **Dye-sensitized TiO₂ nanotube membranes act as a visible-light switchable diffusion gate**, Nanoscale Adv., 1: 4844–4852, 2019.
8. A. Iglíč, E. Gongadze and V. Kralj-Iglíč: **Differential capacitance of electric double layer – influence of asymmetric size of ions, thickness of Stern layer and orientational ordering of water dipoles**, Acta Chim. Slov. 66, 534–541, 2019.

2018

9. A.V. Dubtsov, S.V. Pasechnik, D.V. Shmeliova, A.Sh. Saidgaziev, E. Gongadze, A. Iglíč, S. Kralj: **Liquid Crystalline Droplets in Aqueous Environment: Electrostatic Effects**, *Soft Matter*, 14: 9619–9630 2018, <https://doi.org/10.1039/C8SM01529E>
10. E. Gongadze, L. Mesarec, V. Kralj-Iglíč, A. Iglíč: **Asymmetric finite size of ions and orientational ordering of water in electric double layer theory within lattice model**, *Mini-Rev. Med. Chem.*, 18: 1559–1566, 2018.

2017

11. M. Drab, E. Gongadze, L. Mesarec, S. Kralj, V. Kralj-Iglíč, A. Iglíč: **The internal and external dipole moment of a water molecule and orientational ordering of water dipoles in an electric double layer**, *Eletrotehniški Vestnik (Journal of Electrical Engineering and Computer Science)*, 84(5): 221–234, 2017.
12. E. Gongadze, V. Kralj-Iglíč, A. Iglíč: **Unequal size of ions in modified Eigen-Wicke model of electric double layer**, *Gen. Physiol. Biophys.*, 2017, DOI: 10.4149/gpb_2016045.
13. S. Mohajernia, A. Mazare, E. Gongadze, V. Kralj-Iglíč, A. Iglíč, P. Schmuki **Self-organized, free-standing TiO₂ nanotube membranes: Effect of surface electrokinetic properties on flow-through membranes**, *Electrochimica Acta*, 245: 25–31, 2017, doi.org/10.1016/j.electacta.2017.05.115



2016

14. M. Lorenzetti, E. Gongadze, M. Kulkarni, I. Junkar, A. Iglič: **Electrokinetic Properties of TiO₂ Nanotubular Surfaces**, *Nanoscale Research Letters* 11(1), 2016, DOI: 10.1186/s11671-016-1594-3.
15. M. Kulkarni, A. Mazare, J. Park, E. Gongadze, M.S. Killian, S. Kralj, K. von der Mark, A. Iglic, P.Schmuki: **Protein interactions with layers of TiO₂ nanotube and nanopore arrays: Morphology and surface charge influence**, *Acta biomaterialia*, 45:357-366, 2016, DOI: 10.1016/j.actbio.2016.08.050.

2015

16. E. Gongadze, A. Iglič: **Assymetric size of ions and orientational ordering of water dipoles in electric double layer – an analytical mean-field approach**, *Electrochimica Acta*, 178: 541-545, 2015.
<http://dx.doi.org/10.1016/j.electacta.2015.07.179>
17. M. Kulkarni, A. Mazare, E. Gongadze, Š. Perutkova, V. Kralj-Iglič, I. Milošev, P. Schmuki, A. Iglič, M. Mozetič: **Titanium nanostructures for biomedical applications**, *Nanotechnology*, 26, 062002, 2015.

2014

18. A. Velikonja, E. Gongadze, V. Kralj-Iglič, A. Iglič: **Charge dependent capacitance of Stern layer and capacitance of electrode/electrolyte interface**, *Int. J. Electrochem. Sci.*, 9: 5885-5894, 2014.
19. P.B. Santhosh, A. Velikonja, E. Gongadze, A. Iglič, V. Kralj-Iglič, N. Poklar Ulrich, **Interactions of Divalent Calcium Ions with Head Groups of Zwitterionic Phosphatidylcholine Liposomal Membranes**, *Acta Chim. Slov.*, 61: 241–245, 2014.
20. E. Gongadze, A. Iglič, **Relative Permittivity in Stern and Diffuse Layers**, *Acta Chim. Slov.*, 61: 241–245, 2014.
21. E. Gongadze, A. Velikonja, Š. Perutkova, P. Kramar, A. Maček-Lebar, V. Kralj-Iglič, A. Iglič, **Ions and water molecules in an electrolyte solution in contact with charged and dipolar surfaces**, *Electrochimica Acta*, 126: 42-60, 2014.
22. P. B. Santhosh, A. Velikonja, Š. Perutkova, E. Gongadze, M. Kulkarni, J. Genova, K. Eleršič, A. Iglič, V. Kralj Iglič, N. Poklar Ulrich: **Influence of nanoparticle-membrane electrostatic interactions on membrane fluidity and bending elasticity**, *Chem. Phys. Lipids*, 178: 52–62, 2014.

2013

23. E. Gongadze, A. Velikonja, T. Slivnik, V. Kralj-Iglič, A. Iglič, **The quadrupole moment of water molecules and the permittivity of water near a charged surface**, *Electrochimica Acta*, 109: 656-662, 2013.
24. A. Velikonja, P. B. Santhosh, E. Gongadze, M. Kulkarni, K. Eleršič, Š. Perutkova, V. Kralj-Iglič, N. Poklar Ulrich, A. Iglič: **Interaction between dipolar lipid headgroups and charged nanoparticles mediated by water dipoles and ions**, *Int. J. Mol. Sci.*, 14: 15312-15329, 2013.
25. A. Velikonja, S. Perutkova, E. Gongadze, P. Kramar, A. Polak, A. Maček-Lebar and A. Iglič: **Monovalent ions and water dipoles in contact with dipolar zwitterionic lipid headroups - theory and MD simulations**, *Int. J. Mol. Sci.*, 14: 2846-2861, 2013.
26. E. Gongadze and A. Iglič: **Excluded volume effect of counterions and water dipoles near a highly charged surface due to a rotationally averaged Boltzmann factor for water dipoles**, *Gen. Phys. Biophys.*, 32: 143-145, 2013.
27. E. Gongadze, D. Kabaso, S. Bauer, J. Park, P. Schmuki, A. Iglič: **Adhesion of osteoblasts to a vertically aligned TiO₂ nanotube surface**, *Mini Rev. Med. Chem.*, 13: 94 - 200, 2013. DOI: [10.2174/1389557511313020002](https://doi.org/10.2174/1389557511313020002)



28. E. Gongadze, U. van Rienen, V. Kralj-Iglič, A. Iglič: **Spatial variation of permittivity of an electrolyte solution in contact with a charged metal surface: a mini review**, *Comp. Meth. Biomech. Biomed. Eng.*, 16: 463-480, 2013.

2012

29. E. Gongadze, A. Iglič: **On the orientational ordering of water and finite size of molecules in the mean-field description of the electric double layer – a mini review**, *Journal of Physics: Conference Series*, 398: 012004, 2012.
30. D. Kabaso, N. Bobrovska, W. Gozdz, E. Gongadze, V. Kralj-Iglič, R. Zorec, A. Iglič: **The transport along membrane nanotubes driven by the spontaneous curvature of membrane components**, *Bioelectrochemistry*, 87: 204–210, 2012.
31. E. Gongadze, A. Iglič: **Physical properties of water near a charged metal surface due to saturation and excluded volume effect**, *Bulg. J. Phys.*, 39: 12–28, 2012.
32. E. Gongadze, A. Iglič: **Decrease of permittivity of an electrolyte solution near a charged surface due to saturation and excluded volume effects**, *Bioelectrochemistry*, 87: 199–203, 2012, <http://dx.doi.org/10.1016/j.bioelechem.2011.12.001>

2011

33. E. Gongadze, D. Kabaso, S. Bauer, T. Slivnik, P. Schmuki, U. van Rienen, A. Iglič: **Adhesion of osteoblasts to a nanorough titanium implant surface**, *Int. J. Nanomed.*, 6:1801–1816, 2011.
34. E. Gongadze, U. van Rienen, A. Iglič: **Generalized Stern models of an electric double layer considering the spatial variation of permittivity and finite size of ions in saturation regime**, *Cell. Mol. Biol. Lett.*, 16(4): 576-94, 2011.
35. D. Kabaso, E. Gongadze, J. Jorgačevski, U. van Rienen, R. Zorec, A. Iglič: **Exploring the binding dynamics of BAR proteins**, *Cell. Mol. Biol. Lett.* 16: 398-411, 2011.
36. E. Gongadze, U. van Rienen, V. Kralj-Iglič, A. Iglič: **Langevin Poisson-Boltzmann equation: point-like ions and water dipoles near charged membrane surface**. *Gen. Physiol. Biophys.* 30: 130-137, 2011.
37. D. Kabaso, E. Gongadze, P. Elter, U. van Rienen, J. Gimsa, V. Kralj-Iglič, A. Iglič: **Attachment of rod-like (BAR) proteins and membrane shape**, *Mini Rev. Med. Chem.*, 11: 272-282, 2011.
38. D. Kabaso, E. Gongadze, Š. Perutkova, C. Matschegewski, V. Kralj-Iglič, U. Beck, U. van Rienen, A. Iglič: **Mechanics and electrostatics of the interactions between osteoblasts and titanium surface**, *Comp. Meth. Biomech. Biomed. Eng.* 14: 469 – 482, 2011.

2010

39. A. Iglic, E. Gongadze, K. Bohinc: **Excluded volume effect and orientational ordering near charged surface in solution of ions and Langevin dipoles**, *Bioelectrochemistry*, 79: 223–227, 2010.

Books:

40. E. Gongadze, Š. Perutková, V. Kralj-Iglič, U. van Rienen, U., A. Iglič, D. Kabaso, *Electromechanical basis for the interaction between osteoblasts and negatively charged titanium surface*, *Advances in Planar Lipid Bilayers and Liposomes (APLBL)*, Vol.13, 6, pp. 197-219, Elsevier Amsterdam, 2011.
41. E. Gongadze, K. Bohinc, U. van Rienen, V. Kralj-Iglič, A. Iglič, *Spatial variation of permittivity near a charged membrane in contact with electrolyte solution*, *Advances in Planar Lipid Bilayers and Liposomes (APLBL)*, Vol.11, 5, pp. 101-126, Elsevier Amsterdam, 2010.



Conference papers:

42. A. Iglič, E. Gongadze, D. Kabaso, Š. Perutkova, U. van Rienen, V. Kralj-Iglič, Mechanics and electrostatics of the interactions between cells and surface of titanium implants, *18th Meeting European Association of Red Cell Research (EARCR)*, Wroclaw-Piechowice, Poland, p.25, 12-15 May 2011.
43. A. Iglič, E. Gongadze, D. Kabaso, Š. Perutkova, V. Kralj-Iglič, U. van Rienen, Electrostatics and mechanics of the interactions between osteoblasts and a surface of titanium implants, *21st International Symposium on Bioelectrochemistry and Bioenergetics*, Cracow, Poland, p. 297, 8-12 May 2011.
44. E. Gongadze, U. van Rienen, A. Iglič, An electric double layer model with a space dependent permittivity near a charged titanium implant surface, *21st International Symposium on Bioelectrochemistry and Bioenergetics*, Cracow, Poland, p. 320, May 8-12, 2011.
45. E. Gongadze, Š. Perutkova, U. van Rienen, A. Iglič, Mechanics and electrostatics of the interactions between osteoblasts and nanostructured surface of titanium implants, *Advances in biomechanics and mechanobiological modelling*, University of Oxford, England, 21st April 2011.
46. U. van Rienen, R. Appali, R. Bader, W. Baumann, U. Beck, D. Behrend, R. Benecke, K. Biala, H. Birkholz, E. Burkel, G. Engel, J. Gimsa, U. Gimsa, E. Gongadze, A. Grünbaum, Y. Haba, F. Liese, B. Liu, M. Lüder, C. Matschegewski, W. Mittelmeier, Analyse und Simulation von Wechselwirkungen von Implantaten und Biosystemen. *Biomed Tech (DOI 10.1515/BMT.2010.543)*, October 2010.
47. E. Gongadze, S. Petersen, A. Iglič, U. van Rienen, Elektrische Doppelschicht und Strukturierte Titan Implantate (Electrical Double Layer and Structured Titanium Implants), *Biomedizinische Technik/Biomedical Engineering*. Band 55, Heft s1, pp. 171-174, ISSN (Online) 1862-278X, ISSN (Print) 0013-5585, DOI: 10.1515/BMT.2010.712, October 2010.
48. E. Gongadze, U. van Rienen, A. Iglič, Interactions between titanium implant's surface and osteoblasts mediated by proteins in electrolyte solution, *61st Annual Meeting of the International Society of Electrochemistry (ISE)*, Nice, France, 27.09-01.10.2010.
49. E. Gongadze, U. van Rienen, A. Iglič, Electric double layer on geometrically structured implants, *Conf. IEEE - ERK'2010* Portoroz, Slovenian section IEEE, Vol. B, pp. 339-342, 20-22 Sept. 2010.
50. E. Gongadze, A. Iglič, S. Petersen, U. van Rienen, An electrical double layer model with spatial variation of the permittivity, *International Symposium on Electromagnetic Theory (EMTS 2010)*, Berlin, Germany, 16-19 August 2010.
51. E. Gongadze, A. Iglič, S. Petersen, U. van Rienen, An electric double layer with a spatial variation of the permittivity, *21st Workshop on "Advances in Electromagnetic Research"*, p. 42, August 2010.
52. A. Iglič, E. Gongadze, Š. Perutková, K. Bohinc, G. Bobojević, U. van Rienen, V. Kralj-Iglič, Interactions between titanium surface and osteoblasts mediated by positively charged, *Proc. of CMBBE 2010*, pp. 92-97, February 2010.
53. E. Gongadze, S. Petersen, U. Beck, U. van Rienen, Classical models of the interface between an electrode and electrolyte, *Comsol Conference*, Milano, October 2009.
54. E. Gongadze, S. Petersen, U. Beck, U. van Rienen, Electrical double layer-the interface between an implant and a body fluid, *U.R.S.I. Landesausschuss in der Bundesrepublik Deutschland e.V. Kleinheubacher Tagung*, September 2009.
55. E. Gongadze, S. Petersen, U. Beck, U. van Rienen, Classical models of the interface between metals and electrolytes, *20th Workshop on "Advances in Electromagnetic Research"*, p. 53, August 2009.