

**Списък на научните трудове
на проф. д-р Антония Стоянова**

2025

1. Garbev, A., Petkucheva, E., Ivanova, G., Dimitrova, M., **Stoyanova, A.**, Slavcheva, E. (2025). Utilization of flotation wastewater for metal xanthate gel synthesis and its role in polyaniline-based supercapacitor electrode fabrication. *Gels*, 11(6), 446.
2. Veleva, S., Marinova, D., Harizanova, S., Koleva, V., Lefterova, E., Shipochka, M., Dimitrov, O., **Stoyanova, A.**, Stoyanova, R. (2025). Mixing approaches in enhancing the capacitive performance of rGO-based hybrid electrodes. *Materials*, 18(11), 2460.. (2025). Mixing approaches in enhancing the capacitive performance of rGO-based hybrid electrodes. *Materials*, 18(11), 2460.
3. Mladenova, B., Soserov, L., Dimitrova, M., Lefterova, E., **Stoyanova, A.** (2025). Green supercapacitor composed of environmentally friendly materials. *Electrochimica Acta*, 514, 145679.
4. Ilcheva, V., Boev, V., Dimitrova, M., Mladenova, B., Karashanova, D., Lefterova, E., Rey-Raap, N., Arenillas, A., **Stoyanova, A.** Influence of synthesis conditions on the capacitance performance of hydrothermally prepared MnO₂ for carbon xerogel-based solid-state supercapacitors. *Gels*, 11(1), 68.
5. Penchev, H., Ivanova, G., Hubenov, V., Boyadzieva, I., Budurova, D., Ublekov, F., Gigova, A., **Stoyanova, A.** (2025). Supercapacitor cell performance with bacterial nanocellulose and bacterial nanocellulose/polybenzimidazole impregnated membranes as separator. *Membranes*, 15(1), 12.

2024

6. Karamanova, B., Soserov, L., Lefterova, E., Stankulov, T., **Stoyanova, A.** (2025). Influence of acetonitrile on the electrochemical behavior of ionic liquid-based supercapacitors. *Batteries*, 10(8), 266.
7. Mladenova, B., Borisov, G., Dimitrova, M., Budurova, D., Staneva, M., Ublekov, F., **Stoyanova, A.** (2024). Nanocomposite perfluorosulfonic acid/montmorillonite-Na⁺ polymer membrane as gel electrolyte in hybrid supercapacitors. *Gels*, 10(7), 452.
8. Mladenova, B., Dimitrova, M., **Stoyanova, A.** (2024). MnO₂/AgNPs composite as flexible electrode material for solid-state hybrid supercapacitor. *Batteries*, 10(4), 122.
9. Mladenova, B., Pashova, K., Hinkov, I., Dimitrova, M., **Stoyanova, A.** (2024). Green synthesis of MnO₂ using *Calendula officinalis* and *Tilia cordata* extracts for application in supercapacitors. *Monatshefte für Chemie - Chemical Monthly*, 155(3), 341–348.
10. Soserov, L., Mladenova, B., Karamanova, B., Lefterova, E., Arenillas, A., Lufrano, F., **Stoyanova, A.** (2024). Comparative study of electrochemical performance of symmetric supercapacitors between aqueous electrolyte and polymer exchange membrane. *Monatshefte für Chemie - Chemical Monthly*, 155(3), 333–339.

2023

11. Karamanova, B., Mladenova, E., Thomas, M., Rey-Raap, N., Arenillas, A., **Stoyanova, A.** (2023). Electrochemical performance of symmetric solid-state supercapacitors based on carbon xerogel electrodes and solid polymer electrolytes. *Gels*, 9(12), 983.
12. Rey-Raap, N., Flores-López, S. L., dos Santos-Gómez, L., Brigandi, A., Thomas, M., **Stoyanova, A.**, Lufrano, F., Arenillas, A. (2023). Graphene doped carbon-gels and MnO₂ for next generation of solid-state asymmetric supercapacitors. *ChemElectroChem*, 10(24), e202300161.
13. Thomas, M., Veleva, S., Karamanova, B., Brigandi, A., Rey-Raap, N., Arenillas, A., **Stoyanova, A.**, Lufrano F. (2023). Highly stable and reliable asymmetric solid-state supercapacitors with low self-discharge rates. *Sustainable Materials and Technologies*, 38, e00770.
14. Lefterova, E., Marinov, Y., Ivanova, G., **Stoyanova, A.**, Hadjichristov, G. (2023). Electrochemical cells with anodes performed with Zn active mass with added B (Pb) SCCO 2212 conductive ceramics. *Proceedings of the Bulgarian Academy of Sciences*, 76(6), 871–880.
15. Novakov, C., Kalinova, R., Veleva, S., Ublekov, F., Dimitrov, I., **Stoyanova, A.** (2023). Flexible polymer-ionic liquid films for supercapacitor applications. *Gels*, 9(4), 338.
16. Soserov, L., **Stoyanova, A.** (2023). Effect of surfactants and wetting agents on the electrochemical characteristics of Ni/Zn batteries. *Bulgarian Chemical Communications*, 126.

2022

17. Soserov, L., Marinova, D., Koleva, V., **Stoyanova, A.**, Stoyanova, R. (2022). Comparison of the properties of Ni–Mn hydroxides/oxides with Ni–Mn phosphates for the purpose of hybrid supercapacitors. *Batteries*, 8(6), 51.
18. Stoyanova-Ivanova, A., Lefterova, E., Ivanova, G., Marinov, Y., Hadjichristov, G., **Stoyanova, A.** (2022). Impedance spectroscopy study of Ni–Zn electrochemical alkaline systems with anode of nano-sized ZnO doped with conducting ceramics B (Pb) SCCO 2212. *Proceedings of the Bulgarian Academy of Sciences*, 75(3), 358–366.
19. Karamanova, B., Ublekov, P., Soserov, L., Novakov, C., Dimitrov, I., **Stoyanova, A.** (2022). Hybrid supercapacitors with innovative binder—*Ex-situ* structural and morphological studies. *Bulgarian Chemical Communications*, 54, 20–26.

2021

20. Kalinova, R., Dimitrov, I., Novakov, C., Veleva, S., **Stoyanova, A.** (2021). Modular platform for synthesis of poly (ionic liquid) electrolytes for electrochemical applications in supercapacitors. *ChemistrySelect*, 6(15), 3795–3801.
21. Karamanova, B., Shipochka, M., Georgiev, M., Stankulov, T., **Stoyanova, A.**, Stoyanova, R. (2021). Biomass-derived carbonaceous materials to achieve high-energy-density supercapacitors. *Frontiers in Materials*, 8, 654841.

22. Karamanova, B., **Stoyanova, A.**, Shipochka, M., Veleva, S., Stoyanova, R. (2021). Effect of alkaline-basic electrolytes on the capacitance performance of biomass-derived carbonaceous materials. *Materials*, 13(13), 2941.

2020

23. Lefterova, E., Veleva, S., **Stoyanova, A.** (2020). Impedance spectroscopy studies of the electrochemical hybrid supercapacitors based on activated carbon and iron oxides. *Bulgarian Chemical Communications*, 52, 88–92.
24. Stoyanova-Ivanova, A., Lilov, P., Vasev, A., **Stoyanova, A.**, Ivanova, G., Karashanova, D., Mikli, V. (2020). Studies of structural and morphological properties of cuprate conductive ceramics after electrochemical treatment in alkaline electrolyte. *Materials Chemistry and Physics*, 239, 121934.
25. Petrova, V., Stoyanova-Ivanova, A., Lilov, P., Petkov, O., Ivanova, G., Karamanova, B., **Stoyanova A.**, Mikli, V. (2020). Ultrasound assisted mixing of zinc active mass with conductive ceramic additives for Ni-Zn battery. *ECS Transactions*, 95(1), 227.

2019

26. Karamanova, B., **Stoyanova, A.**, Shipochka, M., Girginov, C., Stoyanova, R. (2019). On the cycling stability of biomass-derived carbons as electrodes in supercapacitors. *Journal of Alloys and Compounds*, 803, 882–890.
27. Stoyanova, R., Koleva, V., **Stoyanova, A.** (2019). Lithium versus mono/polyvalent ion intercalation: hybrid metal ion systems for energy storage. *The Chemical Record*, 19(2–3), 474–501.
28. Ivanova, G., Stoyanova-Ivanova, A., Kovacheva, D., **Stoyanova, A.** (2019). Improvement of the electrochemical properties of Ni-Zn rechargeable batteries by adding B (Pb) SrCaCuO conducting ceramics. *Bulgarian Chemical Communications*, 51(1), 66–72.
29. Veleva, S., Ivanova, S., Półrolniczak, P., Wasiński, K., Nihtianova, D., **Stoyanova, A.**, Stoyanova, R. (2019). Eco-compatible oxides enabling energy storage via $\text{Li}^+/\text{Mg}^{2+}$ co-intercalation. *Dalton Transactions*, 48(36), 13641–13650.
30. Stoyanova-Ivanova, A., Vasev, A., Lilov, P., Petrova, V., Marinov, Y., Ivanova, G., **Stoyanova A.**, Mikli, V. (2019). Conductive ceramic based on the Bi-Sr-Ca-Cu-O HTSC system as an additive to the zinc electrode mass in the rechargeable Ni-Zn batteries–electrochemical impedance study. *Comptes Rendus de l'Académie Bulgare des Sciences*, 72, 174–181.

2018

31. Soserov, L., **Stoyanova, A.**, Boyadzhieva, T., Koleva, V., Kalapsazova, M., Stoyanova, R. (2018). Nickel-manganese structured and multiphase composites as electrodes for hybrid supercapacitors. *Electrochimica Acta*, 283, 1063–1071.

32. Ivanova, G. D., **Stoyanova, A. E.**, Mladenov, M. A., Raicheff, R. G., Kovacheva, D. G. (2018). Effect of the concentration of MnO_2 in the composite electrode and the electrolyte on the electrochemical properties of a hybrid supercapacitor. *Bulgarian Chemical Communications*, 50, 146–152.
33. Lilov, P. A., Vasev, A. Y., **Stoyanova, A. E.**, Marinov, Y. G., Stoyanova-Ivanova, A. K. (2018). Electrochemical impedance study of HTSC ceramics YBCO and BSCCO in presence of electrolyte. *Bulgarian Chemical Communications*, 50, 153–157.

2017

34. Soserov, L., Boyadzhieva, T., Koleva, V., Girginov, C., **Stoyanova, A.**, Stoyanova, R. (2017). Effect of the electrolyte alkaline ions on the electrochemical performance of α - $\text{Ni}(\text{OH})_2$ /activated carbon composites in the hybrid supercapacitor cell. *ChemistrySelect*, 2(23), 6693–6698.
35. Ch. Girginov, Sv. Veleva, S. Kozhukharov, **A. Stoyanova**, E. Lefterova, M. Mladenov, R. Raichev (2017). A comparative study on application of biogenic hematite and magnetite as electrode materials in hybrid supercapacitors. *Journal of Chemical Technology and Metallurgy*, 52(3), 557–563.
36. Ivanova, G. D., **Stoyanova, A. E.**, Soserov, L. S., Kovacheva, D. G., Karaschanova, D. (2017). Influence of the structure and morphology of MnO_2 on the electrochemical performance of supercapacitor systems. *Bulgarian Chemical Communications*, 49, 71–76.

2016

37. Soserov, L., Boyadzhieva, T., Koleva, V., **Stoyanova, A.**, Stoyanova, R. (2016). The capacitive performance of α - $\text{Ni}(\text{OH})_2$ -based composites for hybrid supercapacitors. *ECS Transactions*, 74(1), 213.
38. **Stoyanova, A.**, Islam, M. M., Borisov, G., Bredow, T., Lefterova, E., Slavcheva, E. (2016). Effect of partial replacement of Pt-based catalysts with Fe and Co for oxygen evolution reaction in PEM water electrolysis: A combined theoretical and experimental study. *Journal of Progressive Research in Chemistry*, 3, 158–165.
39. Veleva, S. K., Stoyanov, L. Z., **Stoyanova, A. E.**, Girginov, C. A., Mladenov, M. A., Kovacheva, D., Raicheff, R. (2016). A hybrid supercapacitor activated carbon/ LiBF_4 /activated carbon–biogenic Fe_2O_3 composite. *Bulgarian Chemical Communications*, 48(4), 758–762.

2015

40. E. D. Lefterova, **A. E. Stoyanova**, H. Kolev, G. Tyuliev, D. Paneva, G. R. Borisov, I. Dragieva (2015). Effect of DC magnetic field on some physical and catalytic properties of Fe and Fe/Pt-nanoparticles synthesized by BH method. *Bulgarian Chemical Communications*, 47(4), 1014–1021.
41. **Stoyanova, A. E.**, Stoyanov, L., Terzieva, S., Stoyanova-Ivanova, A., Mladenov, M., Kovacheva, D., Raichev, R. (2015). Superconducting BSCCO ceramics as additive to the zinc electrode mass in the rechargeable nickel–zinc batteries. *Journal of Progressive Research in Chemistry*, 2(2), 83–91.

42. Borisov, G., **Stoyanova, A.**, Lefterova, E., Vassilev, S., Slavcheva, E. (2015), Ebonex-supported PtM anode catalysts for PEM water electrolysis, *Journal of Progressive Research in Chemistry*, 3, 97 – 108.

2013

43. Borisov, G. R., **Stoyanova, A. E.**, Lefterova, E. D., Slavcheva, E. (2013). A novel non-carbon gas diffusion layer for PEM water electrolysis anodes. *Bulgarian Chemical Communications*, 45, 186–190.
44. **Stoyanova, A.**, Borisov, G., Lefterova, E., Slavcheva, E.. (2013). MEA with carbon free Pt-Fe catalysts and gas diffusion layers for application in PEM water electrolysis. *Bulgarian Chemical Communications*, 45, 191-195

2012

45. Borisov, G., Lefterova, E., **Stoyanova, A.**, Slavcheva, E., Angelov, P., & Vassilev, S. (2012). Optimization of the synthesis conditions using sol-gel method of catalyst materials for PEM water splitting. *Journal of Chemical Technology and Metallurgy*, 48(2), 162–167.
46. **Stoyanova, A.**, Borisov, G., Lefterova, E., Slavcheva, E. (2012). Oxygen evolution on Ebonex-supported Pt-based binary compounds in PEM water electrolysis. *International Journal of Hydrogen Energy*, 37(21), 16515–16521.
47. Borisov, G., **Stoyanova, A.**, Lefterova, E., & Slavcheva, E. (2012). Binary catalysts for PEM water electrolysis. *Proceedings of the Bulgarian Academy of Sciences*, 65, 457812.

2011

48. **Stoyanova, A.**, Slavcheva, E. (2011). Effect of the molecular structure of some quinones on their corrosion inhibiting action. *Materials and Corrosion*, 62(9), 872–877.
49. P. Paunović, D. S. Gogovska, O. Popovski, **A. Stoyanova**, E. Slavcheva, E. Lefterova, P. Iliev, S. Hadzi Jordanov (2011). Preparation and characterization of Co–Ru/TiO₂/MWCNTs electrocatalysts in PEM hydrogen electrolyzer. *International Journal of Hydrogen Energy*, 36(16), 9405–9414.
50. Lefterova, E. D., **Stoyanova, A. E.**, Borisov, G. R., Slavcheva, E. P. (2011). Physical characterization of Pt-M binary electrocatalysts for water splitting. *Bulgarian Chemical Communications*, 43, 138–142.
51. Kostadinova, D., Topalov, G., **Stoyanova, A.**, Lefterova, E., & Dragieva, I. (2011). Investigations of mixed oxides Mg/Ni/Al(O) from layered double hydroxides as catalyst support for PEM water electrolysis. *Bulgarian Chemical Communications*, 43(1), 164.

2010

52. Lefterova, E., **Stoyanova, A.**, Topalov, G., Radev, D., Slavcheva, E., Balabanova, E., & Dragieva, I. (2010). Ebonex (TiO₂n–1) and TiO₂/Carbon as catalyst support materials for PEM water splitting – Comparative investigation. *Nanoscience & Nanotechnology*, 10, 105–108. Sofia: BPS Ltd.

53. **Stoyanova, A. E.**, Lefterova, E. D., Nikolova, V. I., Iliev, P. T., Dragieva, I. D., Slvcheva, E., Water splitting in PEM electrolysis with Ebonex supported catalysts. *Bulgarian Chemical Communications*, 42, 167–173.
54. P. Angelov, **A. Stoyanova**, S. Vassilev, J. Katzarov, Physical methods for treatment and modification of properties of nanomaterials, I. Ultrasonication of model substance in a hydrodynamic generator, Nanomaterials, Substrates and Composites, Proc.Nanoscience & Nanotechnology- Nanostructured Materials Applications and Innovation Transfer, Issue 10, Eds. E. Balabanova and I. Dragieva, “BPS” Ltd., Sofia, Bulgaria, 2010, 191 – 192.

2006

55. Popova, A., **A. Stoyanova**, A. Djambova, M. Machkova, A. Zwetanova, S. Raicheva, Relationship between molecular surface, inhibitor efficiency and ionization potential in the case of steel corrosion in acidic medium, Comptes rendus de l'Academie bulgare des Sciences, 59 (2006) 625- 630.

2002

56. **Stoyanova, A.**, Petkova, G., & Peyerimhoff, S. D. (2002). Correlation between the molecular structure and the corrosion inhibiting effect of some pyrophthalone compounds. *Chemical Physics*, 279(1), 1–6.

1999

57. **Stoyanova, A.**, Naidenov, V., Petrov, K., Dimitrov, M., Nikolov, I., Vitanov, T., Budevski, E. (1999). Effect of the preparation conditions on the structure and catalytic activity of carbon-supported platinum for the electrooxidation of methanol. *Journal of Applied Electrochemistry*, 29, 1197–1203.

1997

58. **A. Stoyanova**, E. Sokolova, S. Raicheva (1997), The inhibition of mild steel corrosion in 1 M HCL in the presence of linear and cyclic thiocarbamides—Effect of concentration and temperature of the corrosion medium on their protective action, *Corrosion Science*, 39, 1595-1604
59. Mueller, U., Duelberg, A., **Stoyanova, A.**, Baltruschat, H. (1997). Reactions of halogenated hydrocarbons at Pt-group metals – II. On the adsorption rate of halogenated hydrocarbons at polycrystalline Pt and Pd electrodes. *Electrochimica Acta*, 42, 2499–2509.

1996

59. Aladjov, B., **Stoyanova, A.**, Selman, J. R., & Lin, Y. P. (1996). Molten salt electrochemical deposition: Overview and applications. In N. Masuko, T. Osaka, & Y. Ito (Eds.), *Electrochemical Technology: Innovation and New Developments* (pp. 301–333). Tokyo: Kodansha Ltd. / Amsterdam: Cordon Breach Publishers.

1994

60. Raicheva, S., Sokolova, E., **Stoyanova, A.** (1994). Sulphur containing organic compounds as mild steels inhibitors in acid medium, *Bulgarian Chemical Communications* 27 (2), 1994, 363- 375
61. B. Aladjov, **A. Stoyanova** (1994), Electrodeposition from oxide based molten salts, *Bulgarian Chemical Communications*, 27, 425-432.

1992

62. Raicheva, S., **Stoyanova, A.**, Peyerimhof, S., Carnell, M. (1992). Inhibitory action and ionizing potential of sulphur containing organic compounds. *Comptes Rendus de l'Académie Bulgare des Sciences*, 45, 61–63.
63. **Stoyanova, A.**, Sokolova, E., & Raicheva, S. (1992). Cyclic carbamides as inhibitors of steel corrosion in hydrochloric acid. *Dokladi na Balgarskata Akademiya na Naukite*, 45(12), 73–76.
64. Popova, A., **Stoyanova, A.**, Djambova, A., Machkova, M., Zwetanova, A., Raicheva, S. (1992). Relationship between molecular surface, inhibitor efficiency and ionization potential in the case of steel corrosion in acidic medium. *Comptes Rendus de l'Académie Bulgare des Sciences*, 59(6), 625-630.