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Research Interests

The research of the group is focused on studies of electron transfer reactions and interfacial properties of proteins and enzymes and on the development of biosensors. In close collaboration with other groups at Hakim Sabzevari University, we study electron transfer reactions at various electrode beds (such as polymer nanocomposites) and bioelectrocatalytic properties of proteins and enzymes for the development of electrochemical enzymatic biosensors for clinically important analytes. We try to investigate using enzymes in the Microchip Technology.

Key research directions: Electrochemical biosensor development; Nanobiosensors; enzymatic biosensor development; Electron transfer reactions and interfacial behaviour of proteins

Publications:

2022

102. New highly efficient 2D/1D HAp/g-C₃N₄ photocatalyst thin film insight into crystal orientation and C-vacancy effects, M. Zargazi, M. Chahkandi, **M. Baghayeri**, *Chemosphere*, 303 (2022) 135079.

101. Application of BiNPs/MWCNTs-PDA/GC sensor to measurement of Tl (I) and Pb (II) using stripping voltammetry, M. Nodehi, **M. Baghayeri**, A. Kaffash, *Chemosphere*, 301 (2022) 134701.

100. Application of N, S-dual-doped carbon/sepiolite clay hybrid material for electrochemical detection of mercury (II) in water resources, M. Ghanei-Motlagh, **M. Baghayeri**, *Materials Chemistry and Physics*, 285 (2022) 126127.
99. Recent advances in carbon nanomaterials-based electrochemical sensors for food azo dyes detection, H. Karimi-Maleh, H. Beitollahi, P.S. Kumar, S. Tajik, P.M. Jahani, F. Karimi, C. Karaman, Y. Vasseghian, **M. Baghayeri**, J. Rouhi, P.-L. Show, S. Rajendran, L. Fu, N. Zare, *Food and Chemical Toxicology*, 164 (2022) 112961.
98. Introducing an electrochemical sensor based on two layers of Ag nanoparticles decorated graphene for rapid determination of methadone in human blood serum, **M. Baghayeri**, S. Nabavi, E. Hasheminejad, V. Ebrahimi, *Topics in Catalysis*, 65 (2022) 623-632.
97. Nanochemistry approach for the fabrication of Fe and N co-decorated biomass-derived activated carbon frameworks: a promising oxygen reduction reaction electrocatalyst in neutral media, *Journal of Nanostructure in Chemistry*, H. Karimi-Maleh, C. Karaman, O. Karaman, F. Karimi, Y. Vasseghian, L. Fu, **M. Baghayeri**, J. Rouhi, P.S. Kumar, P.-L. Show, S. Rajendran, A.L. Sanati, A. Mirabi, *Journal of Nanostructure in Chemistry*, 12 (2022) 429-439.
96. Determination of D&C Red 33 and Patent Blue V Azo dyes using an impressive electrochemical sensor based on carbon paste electrode modified with ZIF-8/g-C₃N₄/Co and ionic liquid in mouthwash and toothpaste as real samples, H. Karimi-Maleh, R. Darabi, M. Shabani-Nooshabadi, **M. Baghayeri**, F. Karimi, J. Rouhi, M. Alizadeh, O. Karaman, Y. Vasseghian, C. Karaman, *Food and Chemical Toxicology*, 162 (2022) 112907.
95. A green and sensitive guanine-based DNA biosensor for idarubicin anticancer monitoring in biological samples: A simple and fast strategy for control of health quality in chemotherapy procedure confirmed by docking investigation, H. Karimi-Maleh, A. Khataee, F. Karimi, **M. Baghayeri**, L. Fu, J. Rouhi, C. Karaman, O. Karaman, R. Boukherroub, *Chemosphere*, 291 (2022) 132928.
94. Electrochemical deposition of polyaniline on the stainless steel mesh for the extraction of polycyclic aromatic hydrocarbons, A. Amiri, **M. Baghayeri**, M.-S. Koshki, *Microchemical Journal*, 173 (2022) 107014.

93. Application of sepiolite/FeS₂ nanocomposite for highly selective detection of mercury(II) based on stripping voltammetric analysis, M.-S. Koshki, **M. Baghayeri**, M. Fayazi, *Journal of Food Measurement and Characterization*, 15 (2021) 5318-5325.
92. An electrochemical strategy for toxic ractopamine sensing in pork samples; twofold amplified nano-based structure analytical tool, Y. Orooji, P. Naderi Asrami, H. Beitollahi, S. Tajik, M. Alizadeh, S. Salmanpour, **M. Baghayeri**, J. Rouhi, A.L. Sanati, F. Karimi, *Journal of Food Measurement and Characterization*, 15 (2021) 4098-4104.
91. Green synthesis of NiONPs using Trigonella subenervis extract and its applications as a highly efficient electrochemical sensor, catalyst, and antibacterial agent, B. Mahdavi, S. Paydarfard, E. Rezaei-Seresht, **M. Baghayeri**, M. Nodehi, *Applied Organometallic Chemistry*, 35 (2021) e6264.
90. Preparation of GO/Fe₃O₄@ PMDA/AuNPs nanocomposite for simultaneous determination of As³⁺ and Cu²⁺ by stripping voltammetry, M. Nodehi, **M. Baghayeri**, H. Veisi, *Talanta*, 230 (2021) 122288.
89. Introducing an electrochemical sensor based on two layers of Ag nanoparticles decorated graphene for rapid determination of methadone in human blood serum, **M. Baghayeri**, S. Nabavi, E. Hasheminejad, V. Ebrahimi, *Topics in Catalysis*, xxx, (2021) xxx.
88. A critical review on the use of potentiometric based biosensors for biomarkers detection, H. Karimi-Maleh, Y. Orooji, F. Karimi, M. Alizadeh, **M. Baghayeri**, J. Rouhi, S. Tajik, H. Beitollahi, S. Agarwal, V.K. Gupta, S. Rajendran, A. Ayati, L. Fu, A.L. Sanati, B. Tanhaei, F. Sen, P. Naderi Asrami, A. Al-Othman, *Biosensors and Bioelectronics*, 184 (2021) 113252.
87. A novel detection method for organophosphorus insecticide fenamiphos: Molecularly imprinted electrochemical sensor based on core-shell Co₃O₄@MOF-74 nanocomposite, H. Karimi-Maleh, M.L. Yola, N. Atar, Y. Orooji, F. Karimi, P.S. Kumar, J. Rouhi, **Mehdi Baghayeri**, *Journal of colloid and interface science*, 592 (2021) 174-185.

86. Magnetic MWCNTs-Dendrimer: A Potential Modifier for Electrochemical Evaluation of As (III) Ions in Real Water Samples, **M. Baghayeri**, A. Amiri, F. Karimabadi, S. Di Masi, B. Maleki, F. Adibian, A. R. Pourali, C. Malitesta, *Journal of Electroanalytical Chemistry*, 888 (2021) 115059.

85. Guanine-Based DNA Biosensor Amplified with Pt/SWCNTs Nanocomposite as Analytical Tool for Nanomolar Determination of Daunorubicin as an Anticancer Drug: A Docking/Experimental Investigation, H. Karimi-Maleh, M. Alizadeh, Y. Orooji, F. Karimi, **M. Baghayeri**, J. Rouhi, S. Tajik, H. Beitollahi, S. Agarwal, V.K. Gupta, S. Rajendran, S. Rostamnia, L. Fu, F. Saberi-Movahed, S. Malekmohammadi, *Industrial & Engineering Chemistry Research* 60 (2021) 816-823.

84. Electrochemical aptasensor of bisphenol A constructed based on 3D mesoporous structural SBA-15-Met with a thin layer of gold nanoparticles, M Nodehi, **M. Baghayeri**, R Behazin, H Veisi, *Microchemical Journal*, 162 (2021) 105825.

83. Electrochemical detection of bisphenol A on a MWCNTs/CuFe₂O₄ nanocomposite modified glassy carbon electrode, **M. Baghayeri**, A Amiri, M Fayazi, M Nodehi, A Esmaeelnia, *Materials Chemistry and Physics* 261 (2021) 124247.

2020

82. Cu-Based MOF for Simultaneous Determination of Trace Tl (I) and Hg (II) by Stripping Voltammetry, **M. Baghayeri**, A. Amiri, B.S. Moghaddam, M. Nodehi, *Journal of the Electrochemical Society*, 167 (2020) 167522.

81. Determination of Trace Tl(I) by Differential Pulse Anodic Stripping Voltammetry Using a Novel Modified Carbon Paste Electrode, M. Ghanei-Motlagh, **M. Baghayeri**, *Journal of The Electrochemical Society*, 167 (2020) 066508.

80. Graphene oxide/polydimethylsiloxane-coated stainless steel mesh for use in solid-phase extraction cartridges and extraction of polycyclic aromatic hydrocarbons, A. Amiri, **M. Baghayeri**, F. Karimabadi, F. Ghaemi, B. Maleki, *Microchimica Acta* 187 (2020) 1-8.

79. Electrochemical quantification of 17 α -Ethinylestradiol in biological samples using a Au/Fe₃O₄@TA/MWNT/GCE sensor, M. Nodehi, **M. Baghayeri**, R. Ansari, H. Veisi, *Materials Chemistry and Physics* 244 (2020) 122687.

78. Electrode designed with a nanocomposite film of CuO Honeycombs/Ag nanoparticles electrogenerated on a magnetic platform as an amperometric glucose sensor, **M. Baghayeri**, M. Nodehi, A. Amiri, N. Amirzadeh, R. Behazin, M.Z. Iqbal, *Analytica Chimica Acta* 1111 (2020) 49-59.

77. Effective extraction of organophosphorus pesticides using sol-gel based coated stainless steel mesh as novel solid-phase extraction sorbent, A. Amiri, M. Baghayeri, N. Vahdati-Nasab, *Journal of Chromatography A* 1620 (2020) 461020.

76. Capacitive and diffusion-controlled mechanism of strontium oxide based symmetric and asymmetric devices, M.Z. Iqbal, S.S. Haider, S. Siddique, M.R.A. Karim, S. Zakar, M. Tayyab, M.M. Faisal, M. Sulman, A. Khan, **M. Baghayeri**, M.A. Kamran, T. Alherbi, M. Javaid Iqbal, T. Hussain, *Journal of Energy Storage* 27 (2020) 101056.

75. One-pot synthesis of dihydro-1H-indeno[1,2-b] pyridines and tetrahydrobenzo[b] pyran derivatives using a new and efficient nanocomposite catalyst based on N-butylsulfonate-functionalized MMWCNTs-D-NH₂, F. Adibian Ali R. Pourali, B. Maleki, **M. Baghayeri**, A. Amiri, *Polyhedron* 175 (2020) 114179.

74. Application of graphene/zinc-based metal-organic framework nanocomposite for electrochemical sensing of As(III) in water resources, **M. Baghayeri**, M. Ghanei-Motlagh, R. Tayebee, M. Fayazi, F. Narenji, *Analytica Chimica Acta* 1099 (2020) 60-67.

2019

73. Investigation on the removal of entacapone from contaminated water using magnetic activated carbon, F. Riahimanesh, A. Alahabadi, **M. Baghayeri**, B. Maleki, M. Miri, *Mater. Res. Express* 6 (2019) 096105.

72. Phosphotungstic acid grafted zeolite imidazolate framework as an effective heterogeneous nanocatalyst for the one-pot solvent-free synthesis of 3,4-dihydropyrimidinones, R. Tayebee, M.F. Abdizadeh, N. Erfaninia, A. Amiri, **M. Baghayeri**, R.M. Kakhki, B. Maleki, E. Esmaili, *Appl Organometal Chem.* 2019;e4959.

71. The role of pramipexole functionalized MWCNTs to the fabrication of Pd nanoparticles modified GCE for electrochemical detection of dopamine, **M. Baghayeri**, M. Nodehi, H. Veisi, M.B. Tehrani, B. Maleki, M. Mehmandost, *DARU Journal of Pharmaceutical Sciences*, 27 (2019) 593-603.

70. A novel electrochemical sensor based on a glassy carbon electrode modified with dendrimer functionalized magnetic graphene oxide for simultaneous determination of trace Pb(II) and Cd(II), **M. Baghayeri**, H. Alinezhad, M. Fayazi, M. Tarahomi, R. Ghanei-Motlagh, B. Maleki, *Electrochimica Acta*, 312 (2019) 80-88.

69. Polyamidoamine dendrimer functionalized iron oxide nanoparticles for simultaneous electrochemical detection of Pb²⁺ and Cd²⁺ ions in environmental waters, B. Maleki, **M. Baghayeri**, M. Ghanei-Motlagh, F.M. Zonoz, A. Amiri, F. Hajizadeh, A. Hosseinifar, E. Esmaeilnezhad, *Measurement*, 140 (2019) 81-88.

68. Non-Enzymatic Amperometric Sensing of Hydrogen Peroxide Based on Vanadium Pentoxide Nanostructures, M. Ghanei-Motlagh, M.A. Taher, M. Fayazi, **M. Baghayeri**, A. Hosseinifar, *Journal of The Electrochemical Society*, 166 (2019) B367-B372.

67. A non-enzymatic hydrogen peroxide sensor based on dendrimer functionalized magnetic graphene oxide decorated with palladium nanoparticles, **M. Baghayeri**, H. Alinezhad, M. Tarahomi, M. Fayazi, M. Ghanei-Motlagh, B. Maleki, *Applied Surface Science*, 478 (2019) 87-93.

66. Employment of Pd nanoparticles at the structure of poly aminohippuric acid as a nanocomposite for hydrogen peroxide detection, **M. Baghayeri**, A. Amiri, H. Razghandi, *Journal of Electroanalytical Chemistry*, 832 (2019) 142-151.

65. Low Band Gap Conductive Copolymer of Thiophene with p-Phenylenediamine and Its Magnetic Nanocomposite: Synthesis, Characterization and Biosensing Activity, M. Rouhi, M.M. Lakouraj, **M. Baghayeri**, *Polymer Composites* 40 (2019) 1034-1042.

2018

64. Poly(pyrrole-co-aniline)@graphene oxide/Fe₃O₄ sorbent for the extraction and preconcentration of polycyclic aromatic hydrocarbons from water samples, A. Amiri, **M. Baghayeri**, E. Hamidi, *New Journal of Chemistry* 42 (2018) 16744-16751.
63. Designing and fabrication of a novel gold nanocomposite structure: application in electrochemical sensing of bisphenol A, **M. Baghayeri**, R. Ansari, M. Nodehi, H. Veisi, *International Journal of Environmental Analytical Chemistry* 989 (2018) 874-888.
62. Magnetic solid-phase extraction of polycyclic aromatic hydrocarbons using a graphene oxide/Fe₃O₄@polystyrene nanocomposite, A. Amiri, **M. Baghayeri**, M. Sedighi, *Microchimica Acta* 185 (2018) 393.
61. A simple approach for simultaneous detection of cadmium(II) and lead(II) based on glutathione coated magnetic nanoparticles as a highly selective electrochemical probe, **M. Baghayeri**, A. Amiri, B. Maleki, Z. Alizadeh, O. Reiser, *Sensors and Actuators: B. Chemical* 273 (2018) 1442-1450.
60. Biosynthesis of silver nanoparticles using Oak leaf extract and their application for electrochemical sensing of hydrogen peroxide, H. Veisi, **M. Baghayeri**, S.kazemi, *Applied Organometallic Chemistry* 32 (2018) e4537.
59. Label-free Electrochemical Bisphenol A Aptasensor Based on Designing and Fabrication of a Magnetic Gold Nanocomposite, **M. Baghayeri**, R. Ansari, M. Nodehi, I. Razavipanah, H. Veisi, *Electroanalysis* 30 (2018) 2160-2166.
58. Voltammetric aptasensor for bisphenol A based on the use of a MWCNT/Fe₃O₄@gold nanocomposite, **M. Baghayeri**, R. Ansari, M. Nodehi, I. Razavipanah, H. Veisi, *Microchimica Acta* 185 (2018) 320-328.
57. Poly(aminohippuric acid)-sodium dodecyl sulfate/functionalized graphene oxide nanocomposite for amplified electrochemical sensing of gallic acid, **M. Baghayeri**, A. Amiri, E. Hasheminejad, B. Mahdavi, *Journal of the Iranian Chemical Society* 15 (2018) 1931-1938.
56. Highly Sensitive Nanostructured Electrochemical Sensor Based on Carbon Nanotubes-Pt Nanoparticles Paste Electrode for Simultaneous Determination of Levodopa and Tyramine, **M.**

Baghayeri, H. Beitollahi, A. Akbari, S. Farhadi, *Russian Journal of Electrochemistry* 54 (2018) 292-301.

55. Ag nanoparticles decorated Fe₃O₄/chitosan nanocomposite: synthesis, characterization and application toward electrochemical sensing of hydrogen peroxide, **M. Baghayeri**, H. Veisi, S. Farhadi, H. Beitollahi, B. Maleki, *Journal of the Iranian Chemical Society* 15 (2018) 1015-1022.

54. Non-enzymatic voltammetric glucose sensor made of ternary NiO/Fe₃O₄-SH/para-amino hippuric acid nanocomposite, **M. Baghayeri**, A. Amiria, Z. Alizadeh, H. Veisi, E. Hasheminejad, *Journal of Electroanalytical Chemistry* 810 (2018) 69-77.

53. A nanocomposite consisting of poly(methyl methacrylate), graphene oxide and Fe₃O₄ nanoparticles as a sorbent for magnetic solid-phase extraction of aromatic amines, E. Bashtani, A. Amir, **M. Baghayeri**, *Microchimica Acta* 184 (2018) 14.

52. Magnetic nanoparticles coated with poly(p-phenylenediamine-co-thiophene) as a sorbent for preconcentration of organophosphorus pesticides, A. Targhoo, A. Amiri, **M. Baghayeri**, *Microchimica Acta* 185 (2018) 1-8.

2017

51. Green synthesis of silver nanoparticles using water extract of *Salvia leriifolia*: Antibacterial studies and applications as catalysts in the electrochemical detection of nitrite, **M. Baghayeri**, B. Mahdavi, Z. Hosseinpor-Mohsen Abadi, S. Farhadi, *Applied Organometallic Chemistry* 32 (2017) 1-9.

50. Amperometric glucose biosensor based on immobilization of glucose oxidase on a magnetic glassy carbon electrode modified with a novel magnetic nanocomposite, **M. Baghayeri**, H. Veisi, M. Ghanei-Motlagh, *Sensors and Actuators B* 249 (2017) 321-330.

49. A non-enzymatic glucose sensor based on NiO nanoparticles/functionalized SBA 15/MWCNT-modified carbon paste electrode, **M. Baghayeri**, A. Sedrpoushan, A. Mohammadi, M. Heidari, *Ionics* 23 (2017) 1553-1562.

48. Bioelectrocatalysis of hydrogen peroxide based on immobilized hemoglobin onto glassy carbon electrode modified with magnetic poly(indole-co-thiophene) nanocomposite, **M.**

Baghayeri, M. Rouhi, M.M. Lakouraj, M. Amiri-Aref, *Journal of Electroanalytical Chemistry* 784 (2017) 69-76.

47. Poly (indole-co-thiophene)@Fe₃O₄ as novel adsorbents for the extraction of aniline derivatives from water samples, E. Ebrahimpour, A. Amiri, **M. Baghayeri**, M. Rouhi, M.M. Lakouraj, *Microchemical Journal* 131 (2017) 174-181.

46. Pt nanoparticles/reduced graphene oxide nanosheets as a sensing platform: Application to determination of droxidopa in presence of phenobarbital, **M. Baghayeri**, *Sensors and Actuators B* 240 (2017) 255-263.

45. Novel Conductive Magnetic Nanocomposite Based on Poly (Indole-co-Thiophene) as a Hemoglobin Diagnostic Biosensor: Synthesis, Characterization and Physical Properties, M. Rouhi, M. Mansour Lakouraj, **M. Baghayeri**, V. Hasantabar, *International Journal of Polymer Materials* 66 (2017) 12-19.

44. One-Pot Synthesis of Some 2-Amino-4H-chromene Derivatives Using Triethanolamine as a Novel Reusable Organocatalyst under Solvent-Free Conditions and Its Application in Electrosynthesis of Silver Nanoparticles, B. Maleki, **M. Baghayeri**, S. Sheikh, S. Babaei, S. Farhadi, *Russian Journal of General Chemistry* 87 (2017) 1064-1072.

43. Oxidative Aromatization of 1,3,5-trisubstituted 2-pyrazolines Using Oxalic Acid/Sodium Nitrite System, B. Maleki, F. Barakchi Tabrizy, R. Tayebee, **M. Baghayeri** (2017), Polycyclic Aromatic Compounds, DOI: [10.1080/10406638.2016.1267019](https://doi.org/10.1080/10406638.2016.1267019)

2016

42. Magnetized graphene layers synthesized on the carbon nanofibers as novel adsorbent for the extraction of polycyclic aromatic hydrocarbons from environmental water samples, M. Rezvani-Eivari, A. Amiri, **M. Baghayeri**, F. Ghaemi, *Journal of Chromatography A* 1465 (2016) 1-8.

41. Ultrasound promoted facile one pot synthesis of highly substituted pyran derivatives catalyzed by silica-coated magnetic NiFe₂O₄ nanoparticlesupported H14[NaP5W30O110] under mild conditions, B. Maleki, **M. Baghayeri**, S. Ayazi Jannat Abadi, R. Tayebee, A. Khojastehnezhad, *RSC Advances* 6 (2016) 96644-96661.

40. Investigation about electrocatalytic oxidation of glucose on loaded Ag nanoparticles on functionalized carbon nanotubes, **M. Baghayeri**, A. Amiri, A. Motamedifar, *Ionics* 22 (2016) 1709-1717.

39. A novel way for detection of antiparkinsonism drug entacapone via electrodeposition of silver nanoparticles/functionalized multi-walled carbon nanotubes as an amperometric sensor, **M. Baghayeri**, M.B. Tehrani, A. Amiri, B. Maleki, S. Farhadi, *Material Science and Engineering C* 66 (2016) 77-83.

38. Development of non-enzymatic glucose sensor based on efficient loading Ag nanoparticles on functionalized carbon nanotubes, **M. Baghayeri**, A. Amiri, S. Farhadi, *Sensors and Actuators B: Chemical* 225 (2016) 354-362.

37. Facile Synthesis and Investigation of 1,8-Dioxooctahydroxanthene Derivatives as Corrosion Inhibitors for Mild Steel in Hydrochloric Acid Solution, B. Maleki, A. Davoodi, M.V. Azghandi, **M. Baghayeri**, E. Akbarzadeh, H. Veisi, S.S. Ashrafi, M. Raei, *New Journal of Chemistry* 20 (2016) 1278-1286.

36. Magnetic nanoparticles modified with polyfuran for the extraction of polycyclic aromatic hydrocarbons prior to their determination by gas chromatography, A. Amiri, **M. Baghayeri**, M. Kashmari, *Microchimica Acta* 183 (2016) 149-156.

35. Electrocatalytic determination of isoproterenol using p-aminophenol modified multi-walled carbon nanotubes paste electrode, J. Raof, R. Ojani, **M. Baghayeri**, *Journal of Iranian Electrochemical Society* 1 (2016) 91-99.

34. Fabrication of a sensitive electrochemical biosensor for hydrogen peroxide using the immobilized hemoglobin on a nanocomposite consist of iron-nickel alloys and multi-walled carbon nanotubes, **M. Baghayeri**, B. Maleki, S. Farhadi, *Journal of Applied Chemistry Semnan University* 11 (2016) 101-122.

2015

33. Synthesis of symmetrical N,N'-alkylidene bisamides catalyzed by silica coated magnetic NiFe₂O₄ nanoparticle supported polyphosphoric acid (NiFe₂O₄@SiO₂-PPA) and its application

toward silver nanoparticle synthesis for electrochemical detection of glucose, B. Maleki, **M. Baghayeri**, *RSC Advances* 5 (2015) 79746-79758.

32. Magnetic solid-phase extraction using poly(para-phenylenediamine) modified with magnetic nanoparticles as adsorbent for analysis of monocyclic aromatic amines in water and urine samples, A. Amiri, **M. Baghayeri**, S. Nori, *Journal of Chromatography A* 1415 (2015) 20–26.

31. Fabrication of a facile electrochemical biosensor for hydrogen peroxide using efficient catalysis of hemoglobin on the porous Pd@Fe₃O₄-MWCNT nanocomposite, **M. Baghayeri**, H. Veisi, *Biosensors and Bioelectronics* 74 (2015) 190-198.

30. Ag@TiO₂ nanocomposite; synthesis, characterization and its application as a novel and recyclable catalyst for the one-pot synthesis of benzoxazole derivatives in aqueous media, B. Maleki, **M. Baghayeri**, A. Mohammadzadeh, S. Akhoondi, S.M. Vahdat, *RSC Advances* 5 (2015) 46545-46551.

29. Glucose sensing by a glassy carbon electrode modified with glucose oxidase and a magnetic polymeric nanocomposite, **M. Baghayeri**, *RSC Advances* 5 (2015) 18267-18274.

28. Selective hydrogen peroxide oxidation of sulfides to sulfones with carboxylated multi-walled carbon nano tubes (MWCNTs-COOH) as heterogeneous and recyclable nanocatalysts under organic solvent-free conditions, H. Veisi, F. Hosseini Eshbala, S. Hemmati, **M. Baghayeri**, *RSC Advances* 5 (2015) 10152-10158.

27. Monitoring of hydrogen peroxide using a glassy carbon electrode modified with hemoglobin and a polypyrrole-based nanocomposite, **M. Baghayeri**, E.N. Zare, M.M. Lakouraj, *Microchimica Acta* 182 (2015) 771-779.

26. Electro-magnetic polyfuran/Fe₃O₄ nanocomposite: Synthesis, characterization, antioxidant activity and its application as a biosensor, M. Mansour Lakouraj, E. Nazarzadeh Zare, **M. Baghayeri**, *International Journal of Polymeric Materials* 64 (2015) 175-183.

25. Synthesis of Ag nanoparticles for the electrochemical detection of anticancer drug flutamide, F. Ahmadi, J.B. Raoof, R. Ojani, M. Baghayeri, M. Mansour Lakouraj, H. Tashakkorian, *Chinese Journal of Catalysis* 36 (2015) 439-445.

2014

24. Multi-walled carbon nanotubes decorated with palladium nanoparticles as a novel platform for electrocatalytic sensing applications, **M. Baghayeri**, H. Veisi, H. Veisi, B. Maleki, H. Karimi Maleh, H. Beitollahi, *RSC Advances* 4 (2014) 49595-49604.

23. Voltammetric behavior of tiopronin on carbon paste electrode modified with nanocrystalline Fe₅₀Ni₅₀ alloys, **M. Baghayeri**, B. Maleki, R. Zarghani, *Material Science and Engineering C* 44 (2014) 175-182.

22. In Situ Generated of Iron(III) Dodecyl Sulfate as Lewis Acid-Surfactant Catalyst for Synthesis of Bis-indolyl, Tris-indolyl, Di(bis-indolyl), Tri(bis-indolyl), Tetra(bis-indolyl)methanes and 3-Alkylated Indole Compounds in Water, H. Veisi, B. Maleki, F. Hosseini Eshbala, H. Veisi, R. Masti, S. Sedigh Ashrafi, **M. Baghayeri**, *RSC advance* 4 (2014) 30683-30688.

21. Novel superparamagnetic PFu@Fe₃O₄ conductive nanocomposite as a suitable host for hemoglobin immobilization, **M. Baghayeri**, E.N. Zare, M.M. Lakouraj, *Sensors and Actuators B: Chemical* 202 (2014) 1200-1208.

20. Facile synthesis of PSMA-g-3ABA/MWCNTs nanocomposite as a substrate for hemoglobin immobilization: Application to catalysis of H₂O₂, **M. Baghayeri**, E.N. Zare, R. Hasanzadeh, *Materials Science and Engineering C* 39 (2014) 213-220.

19. A simple hydrogen peroxide biosensor based on a novel electro-magnetic poly(p-phenylenediamine)@Fe₃O₄ nanocomposite, **M. Baghayeri**, E.N. Zare, M.M. Lakouraj, *Biosensors and Bioelectronics* 55 (2014) 259-265.

18. Voltammetric sensor for simultaneous determination of ascorbic acid, acetaminophen, and tryptophan in pharmaceutical products, H. Beitollahi, A. Mohadesi, M. Mostafavi, H. Karimi-Maleh, **M. Baghayeri**, A. Akbari, *Ionics* 20 (2014) 729-737.

17. Voltammetric determination of hydroxylamine in water samples using a 1-benzyl-4-ferrocenyl-1H-[1,2,3]-triazole/carbon nanotube-modified glassy carbon electrode, H. Beitollahi, S. Tajik, S. Z. Mohammadi, **M. Baghayeri**, *Ionics* 20 (2014) 571-579.

2013

16. Direct electrochemistry and electrocatalysis of hemoglobin immobilized on biocompatible poly(styrene-alternative-maleic acid)/functionalized multi-wall carbon nanotubes blends, **M. Baghayeri**, E.N. Zare, M. Namadchian, *Sensors and Actuators B: Chemical* 188 (2013) 227-234.

15. Fabrication of a nanostructured luteolin biosensor for simultaneous determination of levodopa in the presence of acetaminophen and tyramine: Application to the analysis of some real samples, **M. Baghayeri**, M. Namadchian, *Electrochimica Acta* 108 (2013) 22-31.

14. A fast and sensitive nanosensor based on MgO nanoparticle room-temperature ionic liquid carbon paste electrode for determination of methyl dopa in pharmaceutical and patient human urine samples, J. Vahedi, H. Karimi-Maleh, **M. Baghayeri**, A.L. Sanati, M.A. Khalilzadeh, M. Bahrami, *Ionics* 19 (2013) 1907-1914.

13. Electrocatalytic measurement of methionine concentration with a carbon nanotube paste electrode modified with benzoylferrocene, H. Beitollahi, A. Mohadesi, F. Ghorbani, H. Karimi Maleh, **M. Baghayeri**, R. Hosseinzadeh, *Chinese Journal of Catalysis* 34 (2013) 1333-1338.

12. Determination of nifedipine using nanostructured electrochemical sensor based on simple synthesis of Ag nanoparticles at the surface of glassy carbon electrode: Application to the analysis of some real samples, **M. Baghayeri**, M. Namadchian, H. Karimi-Maleh, H. Beitollahi, *Journal of Electroanalytical Chemistry* 697 (2013) 53-59.

11. Fabrication of layer-by-layer deposited films containing carbon nanotubes and poly(malachite green) as a sensor for simultaneous determination of ascorbic acid, epinephrine and uric acid, J.B. Raoof, R. Ojani, **M. Baghayeri**, *Turkish Journal of Chemistry* 37 (2013) 36-50.

2012

10. Fabrication of a fast, simple and sensitive voltammetric sensor for the simultaneous determination of 4-aminohippuric acid and uric acid using a functionalized multi-walled carbon nanotube modified glassy carbon electrode, J.B. Raoof, R. Ojani, **M. Baghayeri**, F. Ahmadi, *Analytical Methods* 4 (2012) 1825-1832.

9. A high sensitive voltammetric sensor for qualitative and quantitative determination of phenobarbital as an antiepileptic drug in presence of acetaminophen, J.B. Raoof, R. Ojani, **M. Baghayeri**, *Colloids and Surfaces B: Biointerfaces* 95 (2012) 121-128.

8. Electrodeposition of quercetin at a multi-walled carbon nanotubes modified glassy carbon electrode as a novel and efficient voltammetric sensor for simultaneous determination of levodopa, uric acid and tyramine, J.B. Raoof, R. Ojani, M. Amiri-Aref, **M. Baghayeri**, *Sensors and Actuators B: Chemical* 166-167 (2012) 508-518.

7. Application of a glassy carbon electrode modified with functionalized multi-walled carbon nanotube as sensor devise for simultaneous determination of acetaminophen and tyramine, J. B. Raoof, R. Ojani, **M. Baghayeri**, M. Amiri-Aref, *Analytical Methods* 4 (2012) 1579-1587.

2011

6. Sensitive voltammetric determination of captopril using a Carbon Paste Electrode Modified with Nano-TiO₂/Ferrocene Carboxylic Acid, J. B. Raoof, R. Ojani, **M. Baghayeri**, *Chinese Journal of Catalysis* 32 (2011) 1685-1692.

5. A selective sensor based on glassy carbon electrode modified with carbon nanotubes and ruthenium oxide/hexacyanoferrate film for simultaneous determination of ascorbic acid, epinephrine and uric acid, J. B. Raoof, R. Ojani, **M. Baghayeri**, *Analytical Methods* 3 (2011) 2367-2373.

2010

4. A study of the electro-catalytic oxidation of methanol on a nickel-salophen modified glassy carbon electrode, J.B. Raoof, A. Nozad Golikand, **M. Baghayeri**, *Journal of Solid State Electrochemistry* 14 (2010) 817-822.

2009

3. Simultaneous electrochemical determination of glutathione and tryptophan on a nano-TiO₂ / ferrocene carboxylic acid modified carbon paste electrode, J.B. Raouf, R. Ojani, **M. Baghayeri**, *Sensors and Actuators B: Chemical* 143 (2009) 261-269.

2. Electrochemical reduction of dioxygen on alizarin modified glassy carbon electrode in acidic medium, A. N. Golikand, J.B. Raouf, **M. Baghayeri**, M. Asgari, L. Irannejad, *Russian Journal of Electrochemistry* 45 (2009) 881-886.

1. Nickel electrode modified by N,N-bis (Salicylidene)Phenylenediamine (Salophen) as a catalyst for methanol oxidation in alkaline medium, A. N. Golikand, J. Raouf, **M. Baghayeri**, M. Asgari, L. Irannejad, *Russian Journal of Electrochemistry* 45 (2009) 192-198.

Invited Talks:

Mehdi Baghayeri (2012), Development of a novel voltammetric sensor for fast and sensitive detection of pethidine based on multi-walled carbon nanotube/nafion composite film: Application in addicts urine and serum samples analysis, Presented at the 6th National Congress on Addiction Biology, Tehran University of Medical Sciences, Tehran, Iran.

Mehdi Baghayeri (2011), Simultaneous Determination of Tyramine, Levodopa and Uric acid with a new Multi-walled Carbon Nanotube composite, Presented at 7th Annual Meeting of the Electrochemistry, K. N. Toosi University of Technology, Tehran, Iran.

Conference Presentations:

1. Adsorptive cathodic stripping voltammetric measurements of trace tryptophane at the nano-structured film electrode, A. Nozad-Golikand, **M. Baghayeri**, M. Asgari. Poster presented at 7th Biennial Electrochemistry Seminar of Iran, Aug. 28-30, 2007, Urmia University, Urmia, Iran.

2. Electrocatalytic reduction of oxygen on glassy carbon electrode modified by Alizarin Red S in acidic medium, J.B. Raouf, A. Nozad-Golikand, **M. Baghayeri**. Poster presented at 15th Iranian Seminar of Analytical Chemistry, Feb. 27- March 1, 2007, Shiraz University, Shiraz, Iran.

3. Electrocatalytic oxidation of methanol in alkaline conditions at the surface of salophen modified nickel electrode, A. Nozad-Golikand, J.B. Raoof, **M. Baghayeri**, L. Irannejad. Poster presented at *15th Iranian Seminar of Analytical Chemistry, Feb. 27- March 1, 2007, Shiraz University, Shiraz, Iran.*
4. Electrocatalytic oxidation of methanol on Ni (II)-N,N-bis(salicylidene) Phenylenediamine modified GC electrode, J.B. Raoof, R. Ojani, **M. Baghayeri**. Poster presented at *5th Electrochemical Seminar of Iran, May 7-8, 2009, Tarbiat Modaress University, Tehran, Iran.*
5. Carbone paste electrode modified with ferrocene carboxylic acid and nano-TiO₂ as sensitive voltammetric sensors for simultaneous detection of glutathione and tryptophan, J.B. Raoof, R. Ojani, **M. Baghayeri**. Poster presented at *8th Iranian Biennial Seminar of Electrochemistry, July 14-16, 2009, Department of Chemistry, University of Kurdistan, Sanandaj, Iran.*
6. A graphite electrode modified by enzymatic reaction of laccase with dopamine for electrocatalysis of N-acetyl-l-cystein in presence of tryptophan, J.B. Raoof, R. Ojani, **M. Baghayeri**. Poster presented at *15th Iranian Chemistry Congress (ICC 2011), 4-6 September, Bu-Ali Sina University, Hamedan, Iran.*
7. Simultaneous voltammetric determination of tyramine and paracetamol using carbon nanoparticles modified glassy carbon electrode, J.B. Raoof, M. Amiri-Aref, **M. Baghayeri**. Poster presented at *15th Iranian Chemistry Congress (ICC 2011), 4-6 September, Bu-Ali Sina University, Hamedan, Iran.*
8. Simultaneous determination of 4-aminohippuric acid and uric acid at carbon nanotube modified glassy carbon electrode, J.B. Raoof, R. Ojani, F. Ahmadi, **M. Baghayeri**. Poster presented at *7th Annual Seminar of Electrochemistry of Iran, K.N. Toosi University of Technology, 9-10, November, 2011.*
9. A novel sensor for simultaneous detection of ascorbic acid, epinephrine and uric acid based on new modified electrode with nano-metallic structure, J.B. Raoof, **M. Baghayeri**, R. Ojani. Poster presented at *7th Annual Seminar of Electrochemistry of Iran, K.N. Toosi University of Technology, 9-10, November, 2011.*

10. Development of a novel voltammetric sensor for fast and sensitive detection of morphine based on multi-walled carbon nanotube/TiO₂ nano particle/nafion composite film, Poster presented at *Cogress on Detection and Analysis of ILLICIT DRUGS, 12-13 Jan., 2012, Tehran, Iran.*

11. Fabrication of a simple and rapid sensor for detection of methadone in real samples based on modification of a glassy carbon electrode with functionalized multiwalled carbon nanotube thin layer, J.B. Raooof, R. Ojani, M. Amiri-Aref, **M. Baghayeri**, M. hashemi. Poster presented at *Congress on Detection and Analysis of ILLICIT DRUGS, 12-13 Jan., 2012, Tehran, Iran.*

12. A sensitive and selective electrochemical sensor based on layer by layer deposition of single-walled carbon nanotube and nafion on the glassy carbon electrode for rapid determination of Pethidine, J.B. Raooof, R. Ojani, **M. Baghayeri**, M. Amiri-Aref. Poster presented at *Congress on Detection and Analysis of ILLICIT DRUGS, 12-13 Jan., 2012, Tehran, Iran.*

13. A novel sensor for methadone detection based on modification of a glassy carbon electrode with functionalized multi-walled carbon nanotube composite: Application in biological and pharmaceutical samples analysis, J. B. Raooof, M. Amiri-Aref, **M. Baghayeri**, R. Ojani, Poster presented at *The 6th National Congress on Addiction Biology, 20-22 Jun., 2012, Tehran University of Medical Sciences, Tehran, Iran.*

14. A Novel Sensor for Simultaneous Determination of 4-Aminohippuric Acid, Epinephrine and Uric Acid Based on Carbon Paste Electrode Modified by Multi-Walled Carbon Nanotubes, J. B. Raooof, R. Ojani, **M. Baghayeri**, F. Ahmadi, Poster presented at *The 10th Iranian Biennial Electrochemistry Seminar, 17-19 July, 2012, Razi University, Kermanshah, Iran.*

15. Fabrication of a Nanoporous Pseudo-Multiwalled Carbon Nanotube Paste Electrode Modified by Ferrocen as a Novel Design for Simultaneous Determination of N-acetyl-l-cystein and Tryptophan, J. B. Raooof, **M. Baghayeri**, F. Ahmadi, Poster presented at *The 10th Iranian Biennial Electrochemistry Seminar, 17-19 July, 2012, Razi University, Kermanshah, Iran.*

16. Electrochemistry and Electroanalysis of Hemoglobin at Glassy Carbon Electrodes Modified with Dendrimer-Encapsulated Fe-Ni Nanoparticles, **M. Baghayeri**, R. Zarghani, Poster presented at *20th Iranian Analytical Chemistry Conference, 25-27 February, 2014, Isfahan University of Technology, Isfahan, Iran.*

17. A novel sensor for simple and fast determination of tetracyclines based on glassy carbon electrode modified with Ni (II) complex of benzil bithiosemicarbazone, **M. Baghayeri**, S. Farhadi, Poster presented at *11th Iranian Biennial Electrochemistry Seminar, 9-11 September, 2014, University of Guilan, Rasht, Iran.*

18. Amperometric biosensor based on direct electrochemistry of hemoglobin in polyallylamine@Fe₃O₄ film, **M. Baghayeri**, S. Farhadi, Poster presented at *11th Iranian Biennial Electrochemistry Seminar, 9-11 September, 2014, University of Guilan, Rasht, Iran.*

19. Synergistic effect of single-walled carbon nanotube decorated with silver nanoparticle for the estimation of glucose in real systems, **M. Baghayeri**, A. Motamedi far, Poster presented at *11th Iranian Biennial Electrochemistry Seminar, 9-11 September, 2014, University of Guilan, Rasht, Iran.*

20. Simultaneous determination of 4-aminohippuric acid and uric acid on a glassy carbon electrode modified with gold-platinum alloy nanoparticles/multiwall carbon nanotubes, **M. Baghayeri**, A. Motamedi far, Poster presented at *11th Iranian Biennial Electrochemistry Seminar, 9-11 September, 2014, University of Guilan, Rasht, Iran.*

21. The Electrocatalytic oxidation of glucose based on three-dimensional interpenetrating silver nanoparticle on functionalized multi-walled carbon nanotube, **M. Baghayeri**, A.H. Amiri, S. Farhadi, Poster presented at *7th Seminar of Chemistry and Environment, 26-27 August, 2015, Baqiyatallah University of Medical Science, Tehran, Iran.*

22. Analysis of monocyclic aromatic amines in water and urine samples with magnetic solid-phase extraction based on poly(P-phenylenediamine) modified magnetic nanoparticles, A.H. Amiri, **M. Baghayeri**, S. Nori, Poster presented at *7th Seminar of Chemistry and Environment, 26-27 August, 2015, Baqiyatallah University of Medical Science, Tehran, Iran.*

23. Extraction and determination of polycyclic aromatic hydrocarbons in water and urine samples using magnetic nanoparticles modified with polyfuran, A.H. Amiri, **M. Baghayeri**, M. Kashmari, Poster presented at *7th Seminar of Chemistry and Environment, 26-27 August, 2015, Baqiyatallah University of Medical Science, Tehran, Iran.*

24. A highly sensitive nonenzymatic glucose sensor based on silver nanocomposites-modified multiwalled carbon nanotubes, A. Motamedifar, **M. Baghayeri**, Poster presented at *2nd Iranian Student Chemistry Conference, 6-8 October, 2015, University of Guilan, Rasht, Iran.*

Honors Societies & Awards

2021

Being on the among World's Top 2% Scientists List created by Stanford University.

2020

Being on the among World's Top 2% Scientists List created by Stanford University and released on 16th October 2020 in the journal PLOS.

2015

Honor researcher at Hakim Sabzevari University