

## Academic CV

### Personal Information

Ahmad Bagheri

Born: June 24, 1977, Amol, Iran

Associate Professor of Physical Chemistry,

Faculty of Chemistry, Semnan University, P.O. Box 35131-19111,

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### Education

Ph.D. in Physical Chemistry, Bu-Ali Sina University, Hamedan, Iran, 2006-2011.

M.Sc. in Physical Chemistry, Bu-Ali Sina University, Hamedan, Iran, 2000-2003.

B.Sc. in Applied Chemistry, University of Guilan, Rasht, Iran, 1996-2000.

### Academic Experience

Semnan University as an Assistant Professor of Physical Chemistry, Semnan, Iran, from Feb. 2012 to Oct. 2017.

Semnan University as an Associate Professor of Physical Chemistry, Semnan, Iran, from Oct. 2017 to now.

### Research Interests:

Surface chemistry, Surfactant properties, Synergism or antagonism between surface active compounds, Experimental and theoretical aspects of surface tension (prediction and correlation), Adsorption, Host-guest inclusion complex formation

### Supervised Thesis:

i) Number of graduate M.Sc: 20

ii) Number of graduate Ph.D: 5

### Taught Courses (2012-up to now)

*Undergraduate:*

General Chemistry I, Lab. General Chemistry, Physical Chemistry I, II & III and their Labs

*Postgraduate:*

Surface Chemistry, Advanced Physical Chemistry, Chemical Kinetics, Statistical Thermodynamics (I & II), Specific Topics in Physical Chemistry

### Professional Experiences:

Vice Chancellor for Research and Technology in Faculty of Chemistry 8/2019-8/2020

Head of Chemistry Department, Semnan University, Semnan 4/2017-8/2019

Head of HSE Council in Semnan University, Semnan  
Senior Researcher, Water Research complex, Tehran, Iran

1/2017-1/2019  
6/2003-3/2006

## **Publication:**

### **Articles in Journals (ISI)**

43- H. Fallah-Totkar, **A. Bagheri**, M. Maddah, The correlation between micelle morphology of surface-active ionic liquids with self-assembly and thermodynamic characteristics: experiment and coarse-grained MD simulation, *Physical Chemistry Chemical Physics (PCCP)*, In press (**2023**).

42- Y. Khaksarfard, **A. Bagheri**, A. A. Rafati, Synergistic effects of binary surfactant mixtures in the adsorption of diclofenac sodium drug from aqueous solution by modified zeolite, *Journal of Colloid and Interface science* 644 (**2023**) 186-199.

41- **A. Bagheri**, Micellar interaction and thermodynamic behavior between double-chained surface active ionic liquid and conventional surfactants in aqueous solution, *Korean Journal of Chemical Engineering*, 40 (**2023**) 2017-2025.

40- M. Maddah, **A. Bagheri**, Determination of hydrophobicity and hydrophilicity ratio in the synergistic effect between cationic surfactants using coarse-grained MD simulation, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. 659 (**2023**) 130779.

39- R. K. Farahani, **A. Bagheri**, The interaction of the surface active ionic liquid with nonionic surfactants (Triton X-100 and Triton X-405) in aqueous solution by using tensiometry method, *Journal of Molecular Liquids*. 345 (**2022**) 118260.

38- A. Moradi, **A. Bagheri**, Effect of a biosurfactant on micellar behavior of cationic surfactants in aqueous solution, *Journal of Solution Chemistry*. 51 (**2022**) 499–516.

- 37- B. Abdous, S. M. Sajjadi **A. Bagheri**, Predicting the aggregation number of cationic surfactants based on ANN-QSAR modeling approaches: understanding the impact of molecular descriptors on aggregation numbers, *RSC advances*, 12 (2022) 33666–33678.
- 36- J. Yousefi, S. M. Sajjadi **A. Bagheri**, Predicting the anticonvulsant activities of phenylacetanilides using quantitative-structure-activity-relationship and artificial neural network methods, *Analytical and bioanalytical chemistry research*, 9 (2022) 331–339.
- 35- **A. Bagheri**, Comparison of the interaction between propranolol hydrochloride (PPL) with anionic surfactant and cationic surface active ionic liquid in micellar phase, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. 615 (2021) 126183.
- 34- R. K. Farahani, **A. Bagheri**, Mixed micelle formation between a surface active ionic liquid and tricyclic antidepressant drugs (imipramine hydrochloride and amitriptyline hydrochloride), *Journal of Molecular Liquids*. 336 (2021) 116306.
- 33- Z. MahdaviFar, M. Afshari, **A. Bagheri**, A. Arab, Systematic investigation of structure and optoelectronic properties of Gen ( $n = 3-20$ ),  $MGe_9$  ( $M = Ga, Si, Sn, As$ ) and  $GaxGe(10-x)$  ( $x = 1-10$ ) Clusters: Computational approach, *Polyhedron* 193 (2021) 114874.
- 32- P. Moeini, **A. Bagheri**, Adsorption kinetic modeling of toxic vapors on activated carbon in the batch reactor, *Research on Chemical Intermediates* 46 (2020) 5547-5566.
- 31- M. Abroodi, **A. Bagheri**, B. M. Razavizadeh, Surface Tension of Binary and Ternary Systems Containing Monoethanolamine (MEA), Water and Alcohols (Methanol, Ethanol, and Isopropanol) at 303.15 K, *J. Chem. Eng. Data*, 65 (2020) 3173–3182.
- 30- E. Golmaghani-Ebrahimi, **A. Bagheri**, M. Fazli, The influence of temperature on surface concentration and interaction energy between components in binary liquid systems, *J. Chem. Thermodynamics*, 146 (2020) 106105
- 29- A. Ghasemii, **A. Bagheri**, Effects of alkyl chain length on synergetic interaction and micelle formation between a homologous series of  $n$ -alkyltrimethylammonium bromides

and amphiphilic drug propranolol hydrochloride, *Journal of Molecular Liquids*. 298 (2020) 111948.

28- M. Abroodi, **A. Bagheri**, B. M. Razavizadeh, Investigation of Surface Tension and Surface Properties of Alkanolamine–Alcohol Mixtures at T = 313.15 K and P = 90.6 kPa, *Journal of Molecular Liquids*. 287 (2019) 1-8.

27- J. Chadha, **A. Bagheri**, Micellar behaviour of amphiphilic drug propranolol hydrochloride with cationic surfactant (Hyamine 1622) at different compositions in solution, *Physics and Chemistry of Liquids*, 57 (2019) 221-234.

26- **A. Bagheri**, P. Jafari-Chashmi, Study of aggregation behavior between N-lauryl sarcosine sodium and dodecyltrimethylammonium bromide in aqueous Solution, using conductometric and spectrophotometric techniques, *Journal of Molecular Liquids*. 282 (2019) 466-473.

25- P. Jafari-Chashmi, **A. Bagheri**, The strong synergistic interaction between surface active ionic liquid and anionic surfactant in the mixed micelle using the spectrophotometric method, *Journal of Molecular Liquids*. 269 (2018) 816-823.

24- E. Golmaghani-Ebrahimi, **A. Bagheri**, M. Fazli, Surface tension of binary and two ternary mixtures containing water–acetonitrile–methanol/ethanol at 298.15 K: experimental data, correlation and prediction by various models, *Physics and Chemistry of Liquids*, 56 (2018) 596-609.

23- M. Bakhshaei, **A. Bagheri**, M. Fazli, A new surface tension model for prediction of interaction energy between components and activity coefficients in binary systems, *Physical Chemistry Research*. 6 (2018) 335-363.

22- **A. Bagheri**, P. Khalili, Synergism between non-ionic and cationic surfactants in a concentration range of mixed monolayers at an air–water interface, *RSC Advances*. 7 (2017) 18151-18161.

21- **A. Bagheri**, S. M. Alinasab Ahmadi, Mixed micellization between amphiphilic drug propranolol hydrochloride and cetyltrimethylammonium bromide surfactant in aqueous medium, *Journal of Molecular Liquids*. 230 (2017) 454-260.

- 20- **A. Bagheri**, M. Fazli, M. Bakhshaei, Surface properties and surface thickness of aqueous solutions of alcohols, *Journal of Molecular Liquids*. 224 (2016) 442-451.
- 19- **A. Bagheri**, M. Fazli, M. Bakhshaei, Effect of temperature and composition on the surface tension and surface properties of binary mixtures containing DMSO and short chain alcohols, *J. Chem. Thermodynamics*, 101 (2016) 236–244.
- 18- **A. Bagheri**, Prediction of surface tension and surface concentration of binary refrigerant system (R290/R600a) at various temperatures and pressures, *Physics and Chemistry of Liquids*, 75 (2016) 727-739.
- 17- **A. Bagheri**, S. A. L. Mirbakhshi, Study of the surface properties and surface concentration of ionic liquid–alcohol mixtures, *Physics and Chemistry of Liquids*, 54 (2016) 529-541.
- 16- A. Hajian, A. A. Rafati, O. Yurchenko, G. Urban, A. Afraz, M. Najafi, **A. Bagheri**, Nanostructured Flower like Pt-Ru for Ethanol Oxidation and Determination" *Journal of the Electrochemical Society*, 162 (2015) 41-46.
- 15- **A. Bagheri**, K. Alizadeh, How do temperature and chemical structure affect surface properties of aqueous solutions of carboxylic acids?, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. 467 (2015) 78-88.
- 14- **A. Bagheri**, A. Abolhasani, Binary mixtures of cationic surfactants with triton X-100 and the studies of physicochemical parameters of the mixed micelles" *Korean J. Chem. Eng.*, 32 (2014) 308-315.
- 13- **A. Bagheri**, Z. Moradian, Equilibrium surface tension and the interaction energy of DMSO with tert-butyl alcohol or iso-amyl alcohol at various temperatures" *J. Chem. Thermodynamics*. 78 (2014) 16-22.
- 12- **A. Bagheri**, A. A. Rafati, Thermodynamic investigation of inclusion complex formation between cetyltrimethyl ammonium bromide(CTAB) and  $\beta$ -cyclodextrin at various temperatures", *Journal of Molecular Liquids*. 195 (2014) 145-149.

- 11- S. Khosharay, M. Seyfi Mazraeno, F. Varaminian, **A. Bagheri**, A proposed combination model for predicting surface tension and surface properties of binary refrigerant mixtures, *International Journal of Refrigeration*, 40 (2014) 347-361.
- 10- **A. Bagheri**, A. A. Rafati, A. Adeli Tajani, A. R. Afraz Borujeni, A. Hajian "Prediction of the Surface Tension, Surface Concentration and the Relative Gibbs Adsorption Isotherm of Non-ideal Binary Liquid Mixtures", *J. Solution. Chem.* 42 (2013) 2071-2086.
- 9- **A. Bagheri**, A. Abolhasani, A. R. Moghadasi, A. A. Nazari-Moghaddam, S. A. Alavi, "Study of surface tension and surface properties of binary systems of DMSO with long chain alcohols at various temperatures" *J. Chem. Thermodynamics*. 63 (2013) 108–115.
- 8- **A. Bagheri**, A. H. Amiri-Majed, Surface thermodynamics of binary mixtures of aliphatic alcohols in heavy water, *J. Chem. Thermodynamics*. 51 (2012) 45–50.
- 7- A. A Rafati, **A. Bagheri**, A. R. Khanchi, E. Ghasemian, Application of the UNIFAC Model for Prediction of Surface Tension and Thickness of the Surface Layer in the Binary Mixtures, *J. Colloid and Interface science* 355 (2011) 252-258.
- 6- A. A Rafati, A. R. Afraz, **A. Bagheri**, Ultrasonic/surfactant assisted of CdS nano hollow sphere synthesis and Characterization", *Materials Characterization*. 62 (2011) 94-98.
- 5- A. A. Rafati, **A. Bagheri**, M. Najafi, Surface Tension of Nonideal Binary and Ternary Liquid Mixtures at Various Temperatures and  $p = 81.5$  kPa, *J. Chem. Thermodynamics* 43 (2011) 248-254.
- 4- A. A. Rafati, **A. Bagheri**, M. Najafi, "Experimental Data and Correlation of Surface Tensions of the Binary and Ternary Systems Water + Acetonitrile + 2-Propanol at 298.15 K and Atmospheric Pressure", *J. Chem. Eng. Data* 55 (2010) 4039-4043.
- 3- H. Beiginejad, **A. Bagheri**, L. Safdari Yekta, Z. B. Nojini, Thermodynamic studies of inclusion complex formation between alkyl pyridinium chlorides and  $\beta$ -cyclodextrin using conductometric method, *J. Incl. Phenom. Macrocycl. Chem* 67 (2010) 247-252.

2- A. A. Rafati, **A. Bagheri**, H. Iluokkhani, M. Zarinehzad, Study of inclusion complex formation between a homologous series of n-alkyl trimethyl ammonium bromides and  $\beta$ -Cyclodextrin, using conductometric technique, *Journal of Molecular Liquids*. 116 (2005) 37-41.

1- A. A. Rafati, **A. Bagheri**, Electrochemical and Thermodynamic Studies of inclusion complex Formation between Tetradecyltrimethyl ammonium Bromide (TTAB) and  $\beta$ -Cyclodextrin ( $\beta$ -CD)", *Bulletin of the Chemical Society of Japan*, 77(2004) 485-490.

### Papers Presented at Conferences and Seminars

33- A. Rasouli, A. S. Soleymani Kia, **A. Bagheri**, Application of newly synthesized layered double hydroxides in preconcentration of heavy metals from aqueous samples using ICP-OES, 21th International Chemistry Congress, 26-28 July 2022, Azarbaijan Shahid Madani University, Tabriz, Iran.

32- A. Rasouli, F. Nabizadeh Chianeh, **A. Bagheri**, The effect of cetyltrimethylammonium chloride surfactant on the structure and performance of PES membrane for filtration of pharmaceutical pollutants, 21th International Chemistry Congress, 26-28 July 2022, Azarbaijan Shahid Madani University, Tabriz, Iran.

31- **A. Bagheri**, A. Abroodi, Prediction of Surface Tension of Binary Mixtures Using Artificial Neural Networks, 26th Iranian Analytical Chemistry Conference, 25-27 August 2019, Semnan University, Semnan, Iran.

30- A. Mazinani, **A. Bagheri**, Soheila Faraji, Ali Arab, Corrosion resistance of Ni-Cu-P with the addition of nano SiC particles, 26th Iranian Analytical Chemistry Conference, 25-27 August 2019, Semnan University, Semnan, Iran.

29- G. Fouladi Vanda, **A. Bagheri**, Soheila Faraji, Ali Arab, The Effect of TiO<sub>2</sub> Nanoparticles on the Corrosion Properties of Electroless Ni-Cu-P Composite Coatings, 26th Iranian Analytical Chemistry Conference, 25-27 August 2019, Semnan University, Semnan, Iran.

28- H. Mohammadi, **A. Bagheri**, Effect of Electrolyte concentration on the aggregation behavior of cationic surfactant Tetradecyltrimethylammonium Bromide(TTAB) at 298.15 K, 26th Iranian Analytical Chemistry Conference, 25-27 August 2019, Semnan University, Semnan, Iran.

27- P. Jafari-Chashmi, **A. Bagheri**, The study of synergism between N-lauryl sarcosine sodium and lithium dodecyl sulfate using conductometric technique, 20th Iranian Chemistry Congress, 17-19 July 2018, Ferdowsi University of Mashhad, Mashhad, Iran.

- 26-** P. Jafari-Chashmi, **A. Bagheri**, A comparison between three methods for determination of the critical micelle concentration in ionic surfactants, 20th Iranian Chemistry Congress, 17-19 July **2018**, Ferdowsi University of Mashhad, Mashhad, Iran.
- 25-** E. Taheri, **A. Bagheri**, Investigation of Surface and Micellar Properties of Mixed Cationic Surfactant and Ionic Liquid in Aqueous Medium, 20th Iranian Physical Chemistry Conference, 20-22 August **2017**, Arak University, Arak, Iran.
- 24-** N. Faraji, **A. Bagheri**, "Study of mixed micellization between surfactants and ionic liquid at different compositions using conductometric technique", 12th Biennial Electrochemistry Seminar of Iran(12BESI), 3-4 May **2017**, University of Isfahan, Isfahan, Iran.
- 23-** M. Bakhshaei, **A. Bagheri**, M. Fazli, "Application of the LWW Model for Surface Tension Prediction of Nonideal Aqueous Solutions of Alcohols by new method", 19th Iranian Physical Chemistry Conference, 13-15 September **2016**, University of Guilan, Rasht, Iran.
- 22-** M. Bakhshaei, **A. Bagheri**, M. Fazli, "Surface thermodynamics and surface properties of binary mixtures containing DMSO and alcohols", 19th Iranian Physical Chemistry Conference, 13-15 September **2016**, University of Guilan, Rasht, Iran.
- 21-** **A. Bagheri**, J. Chadha, "Investigating of Synergism in Critical Micelle Concentration (CMC) of Cationic Surfactant and Amphiphilic drug Mixtures", 19th Iranian Physical Chemistry Conference, 13-15 September **2016**, University of Guilan, Rasht, Iran.
- 20-** **A. Bagheri**, J. Chadha, "Interface and Mixed Micelle Analysis between Surfactants (CPC and Hyamine) by Using Conductometric Technique", 19th Iranian Physical Chemistry Conference, 13-15 September **2016**, University of Guilan, Rasht, Iran.
- 19-** **A. Bagheri**, "Application of the UNIFAC Group-Contribution Model for Calculation of the Surface Concentration and Thickness of the Surface Layer in Binary System" 18th Iranian Chemistry Congress, 30 August-1 September **2015**, Semnan University, Semnan, Iran.
- 18-** Z. Mahdavifar, **A. Bagheri**, M. Afshari, "Theoretical prediction of geometry and electronic properties of pristine  $Ge_n$  ( $n=3-20$ ) clusters", 18th Iranian Chemistry Congress, 30 August-1 September **2015**, Semnan University, Semnan, Iran.
- 17-** **A. Bagheri**, S. A. Mirbakhshi, "Investigation of the surface tension and the interaction energy between the ionic liquid and long-chain alkyl alcohols at different temperatures", 18th Iranian Chemistry Congress, 30 August-1 September **2015**, Semnan University, Semnan, Iran.
- 16-** **A. Bagheri**, P. Khalili, "Synergism and Surface Studies of Mixed Cationic and Non-ionic Surfactants", 18th Iranian Chemistry Congress, 30 August-1 September **2015**, Semnan University, Semnan, Iran.



**15- A. Bagheri**, Z. Moradian, "Application of the UNIFAC Model for Calculation of the Relative Gibbs Adsorption in the Binary Mixtures at Various Temperatures", 17th Iranian Physical Chemistry Conference, 21-23 October **2014**, University of K. N. Toosi, Tehran, Iran.

**14- A. Bagheri**, Z. Moradian, "Experimental Data and Correlation of Surface Tensions of the Binary Systems at Various Temperatures and Atmospheric Pressure", 17th Iranian Physical Chemistry Conference, 21-23 October **2014**, University of K. N. Toosi, Tehran, Iran.

**13- A. Bagheri**, K. Alizadeh, "Application of the UNIFAC Model for Estimation of Relative Gibbs Adsorption and Thickness of Surface Layer in the Binary Mixtures", 15th Iranian Physical Chemistry Conference, 3-6 September **2012**, University of Tehran, Tehran, Iran.

**12- A. Bagheri**, F. Varaminian, S. Khosharay, "Prediction of surface properties of binary refrigerant mixture with density (volume) based model", 15th Iranian Physical Chemistry Conference, 3-6 September **2012**, University of Tehran, Tehran, Iran.

**11- A. Abolhasani, A. Bagheri**, A. R. Moghadasi, "Prediction and Correlation of Surface Tension Data for Binary System at Various Temperatures: DMSO-Long Chain Alcohols", 15th Iranian Physical Chemistry Conference, 3-6 September **2012**, University of Tehran, Tehran, Iran.

**10- A. Abolhasani, A. R. Moghadasi, A. Bagheri**, "Investigating Synergism in Critical Micelle Concentration (CMC) of cationic-nonionic Surfactant Mixtures", 15th Iranian Physical Chemistry Conference, 3-6 September **2012**, University of Tehran, Tehran, Iran.

**9- A. A. Nazari-Moghaddam, S. A. Alavi, A. Bagheri**, "Synergism/antagonism studies between antifoam-antihydrate using surface tension technique", 15th Iranian Physical Chemistry Conference, 3-6 September **2012**, University of Tehran, Tehran, Iran.

**8- A. Bagheri**, A. H. Amiri-Majed, "Surface thermodynamics of binary mixtures of heavy water in alcohols", 15th Iranian Chemistry Congress, 4-6 September **2011**, Bu-Ali Sina University, Hamadan, Iran.

**7- A. Bagheri**, A.A. Rafati, "Surface Tension of Nonideal Ternary Liquid Mixtures at 298.15 K and Atmospheric Pressure" 13th Iranian Physical Chemistry Seminar, April, **2010**, Shiraz University and Shiraz University of Technology, Shiraz, Iran.

**6- A. Bagheri**, A.A. Rafati, "Theoretical prediction of surface tension of binary liquid system (R290 + R600a) at various temperature and pressure", 13th Iranian Physical Chemistry Seminar, April, **2010**, Shiraz University and Shiraz University of Technology, Shiraz, Iran.

**5-** A. Bagheri, H. Beigianejad, L. Safdari-Yekta, "Thermodynamic and Electrochemical Studies of the Inclusion complex Formation between Cationic Surfactants and  $\beta$ -Cyclodextrin", 16th Iranian Seminar of Analytical Chemistry, 28-30 July **2009**, Bu-Ali Sina University, Hamadan, Iran.

**4-** A. A. Rafati, A. Bagheri, L. Safdari-Yekta, "Determination of the Complexation Constants between Cetyltrimethylammonium Bromide(CTAB) and  $\beta$ -Cyclodextrin at Various Temperatures Using Coated Wire Ion Selective Electrodes", 7th Biennial Electrochemistry Seminar of Iran(7BESI), August **2007**/8/28 to 2007/8/30, Urmia University, Urmia, Iran.

**3-** A. A. Rafati, A. Bagheri, L. Safdari-Yekta, "Electrochemical and Thermodynamic Study of the Inclusion Complex Between Tetradecyltrimethyl Ammonium Bromide and beta-Cyclodextrin", 12th Iranian Seminar of Analytical Chemistry, **2003**/9/6 to 2003/9/6, Mazandaran University, Babolsar, Iran.

**2-** A. A. Rafati, A. Bagheri, L. Safdari-Yekta, "Study of Inclusion Complex Between a Homologous Series of n-Alkyltrimethyl Ammonium Bromides and  $\beta$ -Cyclodextrin by Conductometric Technique", 12th Iranian Seminar of Analytical Chemistry, **2003**/9/6 to 2003/9/6, Mazandaran University, Babolsar, Iran.

**1-** A.A. Rafati, A. Bagheri, L. Safdari-Yekta, "Thermodynamic Study of Inclusion Complex between Cationic Surfactants and Cyclodextrins By Coating Wire Surfactant Ion Selective Electrode", 5th Conference of Physical Chemistry, **2002**/9/6 to 2002/9/6, Persian Gulf University, Bushehr, Iran.

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