

1. Research Laboratory of Spectrometry & Micro and Nano Extraction

2. Goals:

Sample preparation using new extraction methods (including methods of micro and nano solid and liquid phase extraction) to be injected into the gas chromatography system for the identification and measurement of chemical compounds

- Optical Sensors,
 - Nanochemistry
 - Flow injection analysis
 - Atomic & molecular spectroscopy,
- Instrumental Analysis,
- Environmental pollutants

General activity

- 1: Development of micro-extraction method based on solvent
- 2: Preparation of new nano-composite coatings for use in solid phase microextraction
- 3: Development of new methods of sorptive extraction and by new coatings and formats
- 4: Preparation of polymer nanofibers by electrospinning
- 5: Preparation of magnetic nanoparticles by electrochemical method
6. Development of MSPE method based on MOF, SPA, GO,...
7. Development of new methods of flow injection analysis
8. Development of optical chemical sensors based on nanostructures

	:Research Interests
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Dr. Afsaneh Mollahosseini	Chromatography
	Micro and nano-extraction
	Environmental pollutants
	Nano-composites
	Electropolymerization
Dr. Rouholah Zare - Dorabei	Optical Sensors
	Atomic & molecular spectroscopy (FIA, sorbent, ICP, FAAS, GF-AAS, HG-AAS, ..)
	Chemometrics(Experimental Design, ...
	Analysis of real samples

4- Instruments

No.	Instrument	producer
1	UV-Vis spectrometer	PG Instruments T80+
2	Conductometer	Metrohm 712
3	Power supply	Dazheng
4	Centrifuge (6000 rpm)	Centurion
5	Laboratory balances (0.00001 g)	Sartorius
6	Oven	Bp211D
7	Ultrasonic	Memmert
8	Shaker	Elma
9	Vortex	S60H
10	Water bath	Wise shake
11	pH meter	SHO-2D

12	Deionized water system	IKA
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5-Research Publications

Journal Publications

A: Dr. A. Mollahosseini

1. محمد شفيعی، بهشته سهرابی و افسانه ملاحسينی، "بررسی فعاليت سطحی و ميزان رسانایی پلی آنيلين عامل دار شده محلول در آب"، نشریه پژوهش های کاربردی در شیمی، سال هشتم، شماره ۱، بهار ۹۳، صفحه ۳۵-۴۰
2. A. Mollahosseini, M.Toghroli," Synthesis and Identification of Fe₃O₄/Clinoptilolite Magnetic Nanocomposite", Journal of Asian Scientific Research, 2015, 5(3):120-125
3. A. Mollahosseini, M. Rokue, M. M. Mojtahedi, M. Toghroli, M. Kamankesh, A. Motaharian, "Mechanical stir bar sorptive extraction coated with polypyrrol-polyaniline nanocomposite followed by gas chromatography as a new and sensitive method for determining polycyclic aromatic hydrocarbons in water samples" Microchemical journal, 2015, under review
4. A. Mollahosseini, M.Toghroli, M. Kamankesh, "Zeolite/Fe₃O₄ as a new sorbent in magnetic solid phase extraction followed by gas chromatography for determining phthalates in aqueous samples", journal of Separation science, 2015, under review.

B: Dr. R. Zare-Dorabei

1. E. Pourbasheer, S. Ahmadpour, R. Zare-Dorabei, M. Nekoei, Quantitative structure activity relationship study of p38 α MAP kinase inhibitors, Arabian Journal of Chemistry, 2013, accepted; DOI: 10.1016/j.arabjc.2013.05.009
2. R. Zare-Dorabei, M.R. Ganjali, H.R. Rahimi, H. Farahani, P. Norouzi, Design and fabrication of a novel optical sensor for determination of trace amounts of lutetium ion, Current Chemistry Letters, 2 (2013) 125-134 .
3. A. Tadjarodi, V. Jalalat, R. Zare-Dorabei, Synthesis and Characterization of Functionalized SBA-15 Mesoporous Silica by N, N'-Bis(salicylidene)ethylenediamine Schiff-Base, Journal of NanoStructures 3 (2013) 477-482.

4. M. Zeeb, B. Mirza, R. Zare-Dorabei, H. Farahani, Ionic Liquid-based Ultrasound-Assisted in Situ Solvent Formation Microextraction Combined with Electrothermal Atomic Absorption Spectrometry as a Practical Method for Preconcentration and Trace Determination of Vanadium in Water and Food Samples, *Food Analytical Methods*, 7 (2014) 1783-1790.
5. A. Tadjarodi, V. Jalalat, R. Zare-Dorabei, Adsorption of La(III) in aqueous systems by N-(2-hydroxyethyl) salicylaldehyde-functionalized mesoporous silica, *Materials Research Bulletin* 61 (2015) 113-119.
6. S.A. Seyed Sadjadi, F. Bohlooli, R. Zare-Dorabei, Electroless deposition of novel ternary Zn-W-B alloy coating, *Analytical & Bioanalytical Electrochemistry*, 7 (2015) 117-128.
7. R. Zare-Dorabei, Kh. Dashtian, V. Jalalat, Lanthanum (III) ion determination by a novel design optical sensor, *IEEE sensor Journal*, 2015 Accept.

National and International Seminars and ConferencesA: Dr. A. Mollahosseini

- ۱- سید محمدرضا میلانی حسینی، افسانه ملاحسینی، سید سجاد حسینی و شیوا همتی پور، "پیش تغلیظ آسکوربیک اسید به وسیله میکرواستخراج فاز جامد با استفاده از نانوپوشش پلی پیرول به کمک روشهای پیشرفته کمومتریکس"، کنفرانس نانو محاسباتی، ۱۳۹۱، تهران- ایران.
- ۲- افسانه ملاحسینی و فاطمه مهدوی پور، "لزوم حذف مشتقات گوگردی از منابع نفتی به عنوان آلاینده محیط زیست"، اولین کنفرانس ملی راهکارهای دستیابی به توسعه پایدار در بخش های کشاورزی، منابع طبیعی و محیط زیست، ۱۳۹۱، تهران- ایران.
- ۳- افسانه ملاحسینی، شهرزاد جوانشیر و فاطمه مهدوی پور، "سنتز نانو ذرات اکسید آهن و اصلاح سطح آن با مشتقات کرومن"، شانزدهمین کنگره شیمی ایران، ۱۳۹۲، یزد- ایران.
- ۴- افسانه ملاحسینی و فاطمه مهدوی پور، "سنتز نانو ذرات اکسید آهن و اصلاح سطح آن با پلی تیوفن"، شانزدهمین کنگره شیمی ایران، ۱۳۹۲، یزد- ایران.
- ۵- افسانه ملاحسینی، فاطمه مهدوی پور و مینا طغرلی، "اصلاح نانوذرات مغناطیسی Fe₃O₄ با پلی تیوفن جهت کاربرد در پوشش های ضدجرقه"، سومین همایش سراسری کاربردهای دفاعی علوم نانو، ۱۳۹۲، دانشگاه جامع امام حسین (ع) - تهران- ایران
- ۶- افسانه ملاحسینی و مینا طغرلی، "سنتز نانوذرات مغناطیسی Fe₃O₄ به روش الکترواکسیداسیون از آهن قراضه"، سومین همایش سراسری کاربردهای دفاعی علوم نانو، ۱۳۹۲، دانشگاه جامع امام حسین (ع)، تهران- ایران
7. S.M. Milani, A. Mollahosseini, S.S. Hosseini and Sh. Hemati, "Synthesis of nano fiber based on molecularly imprinted polymeric coating for solid phase

microextraction”, 20th Iranian Seminar of Analytical Chemistry, 2014, Esfahan, Iran.

8. A. Mollahosseini, A. Mahdavi-pour, “Magnetic Solid Phase Extraction of Sulfur Contaminants by Fe₃O₄ Magnetic Nanoparticles”, 20th Iranian Seminar of Analytical Chemistry, 2014, Esfahan, Iran.

۹- افسانه ملاحسینی، مینا طغرلی و حجت زاهدی، " سنتز و شناسایی نانو کامپوزیت مغناطیسی Clinoptilolite/Fe₃O₄ ، یازدهمین همایش ملی پیام نور، ۱۳۹۳، اصفهان- ایران.

۱۰- افسانه ملاحسینی، ابراهیم نوروزیان، معصومه ترابی، حجت زاهدی و مینا طغرلی، " سنتز سبز نانو ذرات نقره با استفاده از پودر گلبرگهای گل خشت"، یازدهمین همایش ملی پیام نور، ۱۳۹۳، اصفهان- ایران.

۱۱- امیر محمدی، محسن سعیدی، افسانه ملاحسینی "بررسی و اجذب همزمان فنانترون و نیکل در حضور عوامل بهبود دهنده مختلف"، هفتمین همایش ملی و نمایشگاه تخصصی مهندسی محیط زیست ، ۱۳۹۳- تهران-ایران

12. A. Mollahosseini, H. Zahedi, M. Toghroli, "Synthesis of new magnetic composite from natural zeolite" 17th Iranian chemistry conference, 2015, Rafsanjan, Iran .

13. H. Zahedi, A. Mollahosseini, E. Noroozian, M. Torabi , M. Toghroli, " Ultrasonic effect on size and distribution of silver nanoparticles" 17th Iranian chemistry conference, 2015, Rafsanjan, Iran .

14. A. Mollahosseini, M. Toghroli, "Magnetic solid phase extraction based on magnetic clinoptilolite for determination of phthalate ester in aqueous samples", 20th Iranian Seminar of Analytical Chemistry, 2015, Ahwaz, Iran.

15. K. Rezaie, A. Mollahosseini, M. Najafi, "Magnetic molecularly imprinted nanoparticles for recognition and determination of thiopental ", 20th Iranian Seminar of Analytical Chemistry, 2015, Ahwaz, Iran.

B: Dr. R. Zare-Dorabei

1. “ Design a novel method for identification and quantitative determination of alkanolamines degradation in amine sweetening units “ , **R. Zare-Dorabei**, Presented as poster in 15th Iranian Chemistry Congress (15th ICC), September 2011, Faculty of Chemistry, Bu-Ali Sina University, Hamedan, Iran.

2. “ Application of N’-[(2-hydroxyphenyl)methylene]benzohydrazide for preparation of a new optical pH sensor”, **R. Zare-Dorabei**, Presented as poster in 15th Iranian Chemistry Congress (15th ICC), September 2011, Faculty of Chemistry, Bu-Ali Sina University, Hamedan, Iran.

3. “ Design and fabrication a novel dysprosium optical sensor based on immobilization of N'-[(2-hydroxyphenyl)methylene] benzohydrazide on a nano fibers PVC membrane “ , **R. Zare-Dorabei**, M.R. Ganjali , P. Norouzi, Presented as poster in 15th Iranian Chemistry Congress (15th ICC), September 2011, Faculty of Chemistry, Bu-Ali Sina University, Hamedan, Iran.
4. “The effect of mixed salts and organic additives on the performance of primary battery electrolyte”, **R. Zare-Dorabei**, Presented as poster in 8th Iranian Annual Seminar of Electrochemistry, January 2013, Faculty of Chemistry, University of Mazandaran, Babolsar, Iran.
5. “Identification and Optimization of Electrolyte Additives in the Primary Battery”, **R. Zare-Dorabei**, Presented as poster in 8th Iranian Annual Seminar of Electrochemistry, January 2013, Faculty of Chemistry, University of Mazandaran, Babolsar, Iran.
6. “Effect of Organic Additives on Discharge Characteristic of Primary Battery”, **R. Zare-Dorabei**, Presented as poster in 8th Iranian Annual Seminar of Electrochemistry, January 2013, Faculty of Chemistry, University of Mazandaran, Babolsar, Iran.
7. “ Cerium determination by a novel design optical sensor on immobilization of N'-[(2-hydroxyphenyl)methylidene]-2-furohydrazide on a nano fibers PVC membrane “ , **R. Zare-Dorabei**, Presented as poster in 19th Iranian Seminar of Analytical Chemistry, 26-28 February 2013, Ferdowsi University of Mashhad, Mashhad, Iran.
8. “ Ionic liquid-based dispersive liquid–liquid microextraction followed flame atomic absorption spectrometry for the determination of cadmium “,**R. Zare-Dorabei**, M.J Aghagoli, Presented as poster in 19th Iranian Seminar of Analytical Chemistry, 26-28 February 2013, Ferdowsi University of Mashhad, Mashhad, Iran.
9. “Determination of nickel in water samples by dispersive liquid–liquid microextraction combined with UV–Vis spectrophotometry”, M.J. Aghagoli, **R. Zare-Dorabei**, Presented as poster in 16th Iranian Chemistry Congress (16th ICC), September 7-9, 2013, Yazd University, Yazd, Iran.
10. “Development of a dispersive liquid–liquid microextraction method for Lanthanum ion determination in different water samples”, **R. Zare-Dorabei**, M. Parsa, M.J. Aghagoli, Presented as poster in 16th Iranian Chemistry Congress (16th ICC), September 7-9, 2013, Yazd University, Yazd, Iran.
11. "Removal of cerium (III) from aqueous solutions using a central composite design", Kh. Dashtian, V. Jalalat, **R. Zare-Dorabei**, A. Tajarodi, 16th Iranian Inorganic Chemistry Conference (IICC16), August 27-29, 2014,. Bu-Ali Sina University, Hamedan, Iran.
12. " Synthesis and characterization Fe₃O₄@ functinalized -SBA-15 mesoporous silica by N-(2-hydroxyethyl) salicylaldimine"" , V. Jalalat, Kh. Dashtian, A.

- Tajarodi, **R. Zare-Dorabei**, 16th Iranian Inorganic Chemistry Conference (IICC16), August 27-29, 2014,. Bu-Ali Sina University, Hamedan, Iran.
13. "Synthesis of Porphyrin- Graphene Oxide Nanocomposite for an Optical Chemical Sensor Application", R. Rahimi, **R. Zare-Dorabei**, A Koochi, S. Zargari, 18th International Electronic Conference on Synthetic Organic Chemistry (ECSOC), 1 December ,2014, Lugo, Spain.
 14. "Synthesis of graphene oxide-porphyrin nanocomposite and its application in removal of toxic metals", , R. Rahimi, **R. Zare-Dorabei**, A Koochi, S. Zargari, 18th International Electronic Conference on Synthetic Organic Chemistry (ECSOC), 1 December ,2014, Lugo, Spain.
 15. "Application of experimental design for preconcentration of lanthanum ions by magnetic mesoporous silica nanocomposites", R. Jafarinia, **R. Zare-Dorabei**, V. Jalalat, K. Dashtian, 2nd International Conference on Oil, Gas & Petrochemical, 18 December ,2014, Tehran, Iran.
 16. "Application of response surface methodology to optimize the preconcentration and determination of trace levels of lanthanum ions using mesoporous silica nanostructures", R. Jafarinia, **R. Zare-Dorabei**, V. Jalalat, K. Dashtian, 2nd International Conference on Oil, Gas & Petrochemical, 18 December ,2014, Tehran, Iran.