

# CURRICULUM VITAE

## SAEED MASOUM

**Place of birth:** Ghom, Iran

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## EDUCATIONAL BACKGROUND

**Ph.D.:** Sharif University of Technology, Tehran, Iran (Analytical Chemistry), (Simulation and analysis of nuclear magnetic resonance spectroscopy data using chemometric techniques), 2001-2006.

*Nine months stay as visiting student at INAPG, Paris, France, Prof. Douglas Neil Rutledge (2005).*

**M.Sc.:** Shiraz University, Shiraz, Iran (Analytical Chemistry), (Simultaneous Multicomponent Determination of Catalysts Using Neural Networks through a Single Catalytic Kinetic Run), 1998-2000.

**B.Sc.:** Sharif University of Technology, Tehran, Iran (Chemistry), 1994-1998.

## PROFESSIONAL BACKGROUND

Associate Professor, University of Kashan, Kashan, Iran, April 2016.

Assistant Professor, University of Kashan, Kashan, Iran, February 2008.

## RESEARCH INTERESTS

**Nanotechnology:** Quantum dots and their applications in the fields of chemical sensing, biosensing, bioimaging and photocatalysis

**Chemometrics:** Artificial Intelligence (AI), Classification and Clustering Methods, Multivariate Calibration, Experimental Design

**Spectroscopy:** NMR, UV/VIS, Fluorescence

**Separation:** GC/MS, HPLC

## TEACHING EXPERIENCE

**B.Sc.:** Analytical Chemistry (Fundamental and Instrumental) and related Laboratories, General Chemistry, Separation

**M.Sc.:** Advance Analytical Chemistry, Molecular Spectroscopy, New topics in Analytical Chemistry

**Ph.D.:** Statistics and Chemometrics for Analytical Chemistry

## JOB EXPERIENCE

Experiences as a product specialist at *Metrohm (Switzerland)* distributor in Iran (Potentiometry, Ion Chromatography, Voltammetry), 2001- 2015.

## HONORS & AWARDS

Distinguished Researcher Award from University of Kashan (2014 & 2015)

Distinguished Teaching Award from University of Kashan (2012 & 2014)

## PUBLICATIONS

2017.....

**P-49**

H. Seifi, **S. Masoum**, Electrochemical hydrogen storage performance of carbon nanosheets synthesized from bituminous coal, **International Journal of Hydrogen Energy**, 42 (2017) 30145-30155

**P-48**

M. Afzalkhah, **S. Masoum**, M. Behpour, H. Naeimi, A. Reisi-Vanani, Experimental and Theoretical Investigation of Inhibition Efficiency of 2-(2-Hydroxyphenyl)-benzothiazole Using Impedance Spectroscopy, Experimental Design, and Quantum Chemical Calculations, **Industrial & Engineering Chemistry Research**, 56 (2017) 9035-9044

**P-47**

A. Benvidi, S. Abbasi, S. Gharaghani, M. Dehghan Tezerjani, **S. Masoum**, Spectrophotometric determination of synthetic colorants using PSO-GA-ANN, **Food Chemistry**, 220 (2017) 377-384

**P-46**

A. Mohsenikia, A. Gholami, **S. Masoum**, S. Abbasi, Three-way spectrofluorimetric-assisted multivariate determination of nonylphenol ethoxylate and 2-naphthalene sulfonate in wastewater samples and optimization approach for their photocatalytic degradation by CoTiO<sub>3</sub> nanostructure, **Environmental technology**, 38 (2017) 2263-2272

**P-45**

N. Ravankhah, R. Mirzaei, **S. Masoum**, Determination of heavy metals in surface soils around the brick kilns in an arid region, Iran, **Journal of Geochemical Exploration**, In Press, doi:10.1016/j.gexplo.2016.01.005

**P-44**

A. A. Rezaei, A. Reisi-Vanani, **S. Masoum**, An Application of Geometrical Isometries in non-planar molecules, **Iranian Journal of Mathematical Chemistry**, (2017), In Press

2016.....

**P-43**

S. Masoum, A. Gholami S. Ghaheri, D. Jouan-Rimbaud Bouveresse, C. B.Y. Cordella, D. N. Rutledge, Investigation of fragrance stability used in the formulation of cosmetic and hygienic products using headspace solid phase microextraction technique by nano structural materials followed by gas chromatography-mass spectroscopy, **Journal of Separation Science**, 39 (2016) 2760–2769

**P-42**

S. Ghaheri, S. Masoum, A. Gholami, Resolving of challenging gas chromatography-mass spectrometry peak clusters in fragrance samples using multicomponent factorization approaches based on polygon inflation algorithm, **Journal of Chromatography A**, 1429 (2016) 328-317

**P-41**

E. H. Ebrahimabadi, S. M. Ghoreishi, S. Masoum, A. H. Ebrahimabadi, Combination of GC/FID/Mass spectrometry fingerprints and multivariate calibration techniques for recognition of antimicrobial constituents of Myrtus communis L. essential oil, **Journal of Chromatography B**, 1008 (2016) 50-57

**P-40**

A. Gholami, S. Masoum, A. Mohsenikia, S. Abbasi, Chemometrics-assisted excitation-emission fluorescence analytical data for rapid and selective determination of optical brighteners in the presence of uncalibrated interferences, **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy**, 153 (2016) 108-117

**P-39**

N. Ravankhah, R. Mirzaei, S. Masoum, Spatial Eco-Risk Assessment of Heavy Metals in the Surface Soils of Industrial City of Aran-o-Bidgol, Iran, **Bull Environ Contam Toxicol**, 96 (2016) 516-523.

2015.....

**P-38**

M. Behpour, S. Masoum, M. Meshki, Application of electrochemical techniques at a nanostructure-based modified sensor for analyte quantitation, **Synthesis and Reactivity in Inorganic, Metal-Organic, and Nano-Metal Chemistry**, (2015) In press, DOI:10.1080/15533174.2014.989621

**P-37**

N. Samadi, S. Masoum, B. Mehrara, H. Hosseini, Application of linear multivariate calibration techniques to identify the peaks responsible for the antioxidant activity of Satureja hortensis L. and Oliveria decumbens Vent. essential oils by gas chromatography-mass spectrometry, **Journal of Chromatography B**, 1001 (2015) 75-81

**P-36**

S. Masoum, S. Heshamt, Photoluminescence quantitative analysis of gallic acid and caffeine in green tea using multi-way chemometric approaches, **Iranian Journal of Mathematical Chemistry**, 6 (2015) 109-119

**P-35**

S.M. Ghoreishi, F. Saeidinejad, M. Behpour, S. Masoum, Application of multivariate optimization to electrochemical determination of methyl dopa drug in the presence of

diclofenac at a nanostructured electrochemical sensor, **Sensors and Actuators B: Chemical**, 221 (2015) 576-585

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S Masoum, A Gholami, M Hemmesi, S Abbasi, Quality assessment of the saffron samples using second-order spectrophotometric data assisted by three-way chemometric methods via quantitative analysis of synthetic colorants in adulterated saffron, **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy**, 148 (2015) 389-395

**P-33**

S Masoum, M Mehran, S Ghaheeri, Identification of potential antioxidant compounds in the essential oil of thyme by gas chromatography with mass spectrometry and multivariate calibration techniques, **Journal of Separation Science**, 38 (2015) 410-417

**P-32**

M Behpour, S Masoum, A Lalifar, A Khoobi, A novel method based on electrochemical approaches and multivariate calibrations for study and determination of methylparaben in the presence of unexpected interference in cosmetics, **Sensors and Actuators B: Chemical**, 214 (2015) 10-19

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M Meshki, M Behpour, S Masoum, Application of Fe doped ZnO nanorods-based modified sensor for determination of sulfamethoxazole and sulfamethizole using chemometric methods in voltammetric studies, **Journal of Electroanalytical Chemistry**, 740 (2015) 1-7

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M. Behpour, S Masoum, M Meshki, Application of multivariate curve resolution alternating least squares method for determination of caffeic acid in the presence of catechin interference, **Analytical Biochemistry**, 473 (2015) 80-88

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H Naeimi, V Nejadshafiee, S Masoum, Copper@PMO nanocomposites as a novel reusable heterogeneous catalyst for microwave-assisted green synthesis of  $\beta$ -hydroxy-1,2,3-triazoles through experimental design protocol, **Applied Organometallic Chemistry**, 29 (2015) 314-321

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H Naeimi, V Nejadshafiee, S Masoum, Highly efficient copper-imprinted functionalized mesoporous organosilica nanocomposites as a new recyclable catalyst for click synthesis of 1, 2, 3-triazole derivatives under ultrasound irradiation: Multivariate study by factorial design of experiments, **RSC Advances**, 5 (2015) 15006-15016

**2014**.....

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A. Khoobi, S.M. Ghoreishi, M. Behpour, S. Masoum, Three-Dimensional Voltammetry: A Chemometrical Analysis of Electrochemical Data for Determination of Dopamine in the Presence of Unexpected Interference by a Biosensor Based on Gold Nanoparticles, **Analytical Chemistry**, 86 (2014) 8967-8973

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H. Seifi, S. Masoum, S. Seifi, Performance assessment of chemometric resolution methods utilized for extraction of pure components from overlapped signals in gas

chromatography-mass spectrometry, **Journal of Chromatography A**, 1365 (2014) 173-182

**P-25**

**S. Masoum**, S. Abbasi, Model-based three-way chemometric methods for quantitative analysis of linear alkylbenzene sulfonate and optical brightener in real samples using excitation–emission fluorescence data, **Analytical Methods**, 6 (2014) 8544-8553

**P-24**

**S. Masoum**, M. Behpour, F. Azimi, M. H. Motaghedifard, Potentiality of chemometric approaches to determination of (+)-catechin in green tea leave at the surface of multiwalled carbon nanotube paste electrode, **Sensors and Actuators B: Chemical**, 193 (2014) 582-591

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M. Behpour, **S. Masoum**, M. Meshki, Determination of trace amounts of thymol and caffeic acid in real samples using a graphene oxide nanosheet modified electrode: application of experimental design in voltammetric studies, **RSC Advances**, 4 (2014) 14270-14280

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S. M. Ghoreishi, A. Khoobi, M. Behpour, **S. Masoum**, Application of multivariate curve resolution alternating least squares to biomedical analysis using electrochemical techniques at a nanostructure-based modified sensor, **Electrochimica Acta**, 130 (2014) 271-278

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H. Seifi, **S. Masoum**, S. Seifi, E. H. Ebrahimabadi, Chemometric Resolution Approaches in Characterization of Volatile Constituents in Plantago Ovata Seeds using Gas Chromatography-Mass Spectrometry: Methodology and Performance Assessment, **Phytochemical Analysis**, 25 (2014) 273-281

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S. M. Ghoreishi, M. Behpour, A. Khoobi, **S. Masoum**, Application of experimental design for quantification and voltammetric studies of sulfapyridine based on a nanostructure electrochemical sensor, **Arabian Journal of Chemistry**, (2014), In Press

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**S. Masoum**, E.H. Ebrahimabadi, (2014) Weighted Voting Analysis of DNA Microarray for Gene Selection and Gene Expression Analysis of Two Types of Rats Treated with Aristolochic Acid and Ochratoxin A Drugs. **Open Access Library Journal**, 1 (2014): e859. <http://dx.doi.org/10.4236/oalib.1100859>

**2013**.....

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**S. Masoum**, H. Ghasemi-Estarki, H. Seifi, E. Haghiri Ebrahimabadi, H. Parastar, Analysis of the volatile chemical constituents in *Mindium lavigatum* by gas chromatography - Mass spectrometry and correlative chemometric resolution methods, **Microchemical Journal**, 106 (2013) 276-281

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**S. Masoum**, H. Seifi, E. Haghiri Ebrahimabadi, Characterization of volatile components in *Calligonum comosum* by coupling gas chromatography-mass spectrometry and mean

field approach independent component analysis, **Analytical Methods**, 5 (2013) 4639-4647

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A. Khoobi, S. M. Ghoreishi, **S. Masoum**, M. Behpour, Multivariate curve resolution-alternating least squares assisted by voltammetry for simultaneous determination of betaxolol and atenolol using carbon nanotube paste electrode, **Bioelectrochemistry**, 94 (2013) 100-107

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**S. Masoum**, S. Ghaheri, Feature selection and classification of microarray gene expression data of ovarian carcinoma patients using weighted voting support vector machine, **Iranian Journal of Mathematical Chemistry**, 4 (2013) 163-175

**P-14**

M. Behpour, **S. Masoum**, M. Meshki, Study and Electrochemical Determination of Tyrosine at Graphene Nanosheets Composite Film Modified Glassy Carbon Electrode, **Journal of Nanostructure**, 3 (2013) 243-251

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**S. Masoum**, A. Alishahi, M. Shekarchi, H. Farahmand, N. Prieto, G. Rafiee, Determination of Protein and Moisture in Fishmeal by Near-Infrared Reflectance Spectroscopy and Multivariate Regression Based on Partial Least Squares, **Iranian Journal of Chemistry & Chemical Engineering**, 31 (2012) 51-59

**P-12**

M. Mazloun-Ardakani, A. A. Mandegari, **S. Masoum**, H. Naeimi, Multiwall carbon nanotubes modified carbon paste electrode for determination of copper (II) by potentiometric and impedimetric methods, **Journal of Nanostructure**, 2 (2012) 333-343

**P-11**

**S. Masoum**, A. Alishahi, M. Shekarchi, H. Farahmand, Evaluation of the mineral contents in fish meal by FT - NIR using PLS and Kernel PLS, **Iranian Journal of Mathematical Chemistry**, 2 (2011) 31-38

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A. Safavi, N. Maleki, A. Rostamzadeh, **S. Masoum**, CCD camera full range pH sensor array, **Talanta**, 71 (2007) 498-501

**P-9**

**S. Masoum**, C. Malabat, M. Jalali-Heravi, D. N. Rutledge, Application of support vector machines to <sup>1</sup>H NMR data of fish oils: methodology for the confirmation of wild and farmed salmon and their origins, **Analytical and Bioanalytical Chemistry**, 387 (2007) 1499-1510

**P-8**

A. Safavi, A. Rostamzadeh, **S. Masoum**, Wide range of pH measurements using H<sup>+</sup>-selective chromoionophore and time-based flow method, **Talanta**, 68 (2006) 1469-1473

**P-7**

**S. Masoum**, D. Jouan-Rimbaud Bouveresse, J. Vercauteren, M. Jalali-Heravi, D. N. Rutledge, Discrimination of wines based on 2D NMR spectra using learning vector quantization neural networks and partial least squares discriminant analysis, **Analytica Chimica Acta**, 558 (2006) 144-149

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A. Safavi, Om. Moradlou, **S. Maesum**, Simultaneous kinetic determination of sulfite and sulfide using artificial neural networks, **Talanta**, 62 (2004) 51–56

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M. Jalali-Heravi, **S. Masoum**, P. Shahbazikhah, Simulation of <sup>13</sup>C nuclear magnetic resonance spectra of lignin compounds using principal component analysis and artificial neural networks, **Journal of Magnetic Resonance**, 171 (2004) 176-185

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Z. Talebpour, **S. Maesum**, M. Jalali-Heravi, M. Shamsipour, Simultaneous Determination of Theophylline and Caffeine by Proton Magnetic Resonance Using Partial Least Squares Regression Technique, **Analytical Sciences**, 19 (2003) 1079-1082

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G. Absalan, A. Safavi, **S. Maesum**, Application of artificial neural networks as a technique for interference removal: kinetic–spectrophotometric determination of trace amounts of Se(IV) in the presence of Te(IV), **Talanta**, 55 (2001) 1227–1233

**P-2**

A. Safavi, G. Absalan, **S. Maesum**, Simultaneous determination of Se(IV) and Te(IV) as catalysts using Neural Networks through a single kinetic run, **Canadian Journal of Analytical Science and Spectroscopy**, 46 (2001) 23-27

**P-1**

A. Safavi, G. Absalan, **S. Maesum**, Simultaneous determination of V(IV) and Fe(II) as catalyst using “neural networks” through a single catalytic kinetic run, **Analytica Chimica Acta**, 432 (2001) 229–233

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1- **S. Masoum**, H. Saberi, Gene selection and classification of microarray data from lung Adenocarcinoma using Weighted Voting Algorithm and PLS-DA, 15<sup>th</sup> Iranian Chemistry Congress, Bu-Ali Sina University, Hamedan, **September 2011**.

2- M. Mazloun-Ardakani, **S. Masoum**, A. Ali Mandegari, Central composite design applied to optimization of Lead (II) ion membrane electrode based on *N,N'*-bis(3-etoxy salicyliden)-2,2-dimethyl-1,3-propane diamine, 15<sup>th</sup> Iranian Chemistry Congress, Bu-Ali Sina University, Hamedan, **September 2011**.

3-M. Mazloun-Ardakani, H. Sabaghian, R. Vafazadeh, **S. Masoum**, Central composite design applied to optimization of polymeric salicylateselective electrode based on bis(*N*-2-bromophenyl-salicydenaminato)- copper(II)complex, 3rd Iranian Biennial Seminar of Chemometrics, University of Tabriz, Tabriz, **November 2011**.

4- **S. Masoum**, S. Ghaheri, A. Gholami, Potentialities of chemometric approaches to discriminate between dead and 5 year survivor ovarian carcinoma patients, 3rd Iranian Biennial Seminar of Chemometrics, University of Tabriz, Tabriz, **November 2011**.

5- **S. Masoum**, E. H. Ebrahimabadi, Application of chemometric approaches for DNA microarray analysis of two type rats treated with Aristolochic Acid and Ochratoxin A drugs, The 5th Conference & Workshop on Mathematical Chemistry, Payame Noor University of Yazd, **February 2012**.

- 6- **S. Masoum**, H. Ghasemi-Estarki, Ho. Seifi, E. H. Ebrahimabadi, H. Parastar, Analysis of volatile chemical constituents in *Mindium laevigatum* by gas chromatography-mass spectrometry and correlative chemometric resolution methods, The 5th Conference & Workshop on Mathematical Chemistry, Payame Noor University of Yazd, **February 2012**.
- 7- **S. Masoum**, H. Taherizadeh, H. Seifi Diagnostic evaluation of smokers with suspect lung cancer based on chemometric methods, The 5th Conference & Workshop on Mathematical Chemistry, Payame Noor University of Yazd, **February 2012**.
- 8- M. Mazloun-Ardakani, H. Sabaghian, R. Rahimiyan, A. Ali Mondegari, R. Vafazadeh, **S. Masoum**, Using central composite design for optimization of response carbon paste salicylate ion selective electrode, The 5th Conference & Workshop on Mathematical Chemistry, Payame Noor University of Yazd, **February 2012**.
- 9- M. Mazloun-Ardakani, A. Ali Mandegari, **S. Masoum**, H. Naeimi, Application of statistical experimental designs for the optimization of  $\text{Cu}^{2+}$ -carbon paste electrode compositions, The 5th Conference & Workshop on Mathematical Chemistry, Payame Noor University of Yazd, **February 2012**.
- 10- **S. Masoum**, M. Behpour, F. Azimi, M. Motaghedifard, Multiwalled Carbon Nanotube Paste Electrode in Simultaneous Determination of Two Antioxidants Using Chemometrics, Iran-Belarus International Conference on Modern Applications of Nanotechnology (IBCN12), Minsk, Belarus, **June 2012**.
- 11- **S. Masoum**, F. Saeidi Nejad, Support vector machine for classification of gene expression profiles of breast cancer patients treated by letrozole, 19th Iranian Seminar of Analytical Chemistry, Mashhad, Iran, **February 2012**.
- 12- **S. Masoum**, E. H. Ebrahimabadi, H. Seifi, H. Hosseini, M. Valian, Classification and analysis of *myrtus communnis* L. essential oil by Gas Chromatography-Mass spectroscopy using chemometric methods, 19th Iranian Seminar of Analytical Chemistry, Mashhad, Iran, **February 2012**.
- 13- **S. Masoum**, S. Ghaheri, H. Seifi, Comparing and Assessment of Three-way Chemometric Techniques for Resolution of Challenging GC-MS Peaks, 4th Iranian Biennial Chemometrics Seminar, Shiraz, Iran, **November 2013**.
- 14- M. Mazloun, R. Alizadeh, **S. Masoum**, Optimization components of tiosulphate selective electrode by chemometrics, 4th Iranian Biennial Chemometrics Seminar, Shiraz, Iran, **November 2013**.
- 15- S. M. Ghoreishi, **S. Masoum**, F. Saeidi Nejad, Simultaneous Determination of Tryptophan and Tyrosine Assisted by Chemometric Methods at the Surface of Gold Nanoparticles Modified Electrode, 9th Iranian Annual Seminar of Electrochemistry, Tehran, Iran, **December 2013**.
- 16- **S. Masoum**, A.H. Alinoori, S. Hajjaligol, Investigation of atmospheric-pressure chemical ionization reaction products of explosive samples using SIMPLISMA - GWFA on gas chromatography-ion mobility spectrometry data, 20th Iranian Seminar of Analytical Chemistry, Isfahan, Iran, **February 2014**.



- 17- E. H. Ebrahimabadi, S.M. Ghoreishi, **S. Masoum**, A. H. Ebrahimabadi, Identification of potential antimicrobial constituents in the essential oil of *Myrtus communis* L. using gas chromatography-mass spectrometry and multivariate calibration techniques, 20th Iranian Seminar of Analytical Chemistry, Isfahan, Iran, **February 2014**.
- 18- **S. Masoum**, M. Akhbari, A. Allahyari, A. Mazoochi, Potentiality of statistical experimental design in optimization of effective parameters on extraction of essential oil from *Rosa damascene Mill*, 21th Iranian Seminar of Analytical Chemistry, Ahvaz, Iran, **March 2015**.
- 19- **S. Masoum**, M. Bahrami, S. Ghaheri, Analysis of overlapped gas chromatography-mass spectrometry data sets of volatile chemical constituents of some medicinal plants using multivariate curve resolution methods by considering rotational ambiguity, 21th Iranian Seminar of Analytical Chemistry, Ahvaz, Iran, **March 2015**.
- 20- H. Seifi, **S. Masoum**, H. Ghasemi-Estarki, N. Abdollahi, Effect of rotational ambiguity on produce a set of feasible solution for overlapping peaks in analysis of volatile components of *Verbena Officinalis* L. using gas chromatography - mass spectrometry, 21th Iranian Seminar of Analytical Chemistry, Ahvaz, Iran, **March 2015**.
- 21- **S. Masoum**, Identification of potential antimicrobial and antioxidant constituents in some medicinal herbs using hephenated chromatograrhic methods and multivariate calibration techniques, 5th Iranian Biennial Chemometrics Seminar, Tehran, Iran, **November 2015**.
- 22- **S. Masoum**, A. H. Alinoori, Gaussian apodization evolving factor analysis as a novele method for curve resolution of gas chromatography–mass spectrometry datasets and precise local rank detection, 5th Iranian Biennial Chemometrics Seminar, Tehran, Iran, **November 2015**.
- 23- **S. Masoum**, N. Ghasemi, Potentiality of independent component regression in assessment of the peaks responsible for antioxidant activity of Thyme using gas chromatography-mass spectrometry technique, 5th Iranian Biennial Chemometrics Seminar, Tehran, Iran, **November 2015**.
- 24- **S. Masoum**, A. H. Alinoori, An efficient chemometric strategy based on wavelet transform for preprocessing of multi-capillary column - electronic nose data, 5th Iranian Biennial Chemometrics Seminar, Tehran, Iran, **November 2015**.