



Chemistry and Chemical Engineering  
Research Center of Iran

## Curriculum Vitae

**Dr. Hani Sayahi**

**Associate professor of Physical Chemistry**

Department of physical chemistry, Chemical Process Development Institute, Chemistry and  
Chemical Engineering Research Center of Iran (CCERCI), Tehran, Iran, P. O. Box. 14335-186

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### Personal Information:

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Date of Birth: 14<sup>th</sup> March 1979

Marital Status: Married

Children: one son

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### Education:

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**Ph.D. June 2012:** (Physical Chemistry, Solar energy), **Thesis:** “Characterization of Electrochemical Synthesized Nano-Structure  $\text{TiO}_2$  Electrodes in Dye-Sensitized Solar Cell” **Department of Physical Chemistry, University of Kashan, Kashan, Iran**

**M.Sc. March 2006:** (Physical Chemistry, photoactivity and electrochemistry), **Thesis:** “Electrodeposition of Nano- Scale Titanium Oxide on Stainless Steel, Graphite and Platinum Electrodes” **Department of Physical Chemistry, University of Kashan, Kashan, Iran**

**B.Sc. July 2002:** (Applied Chemistry), **Faculty of Science, Azad University (central branch), Tehran, Iran**

### Languages:

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Farsi: official language

Arabic: mother language

English: very good

### Research Interests:

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Nanomaterials and nanoscience (synthesis, electrochemistry, and applications)

Energy conversion and storage (solar cells, supercapacitor, battery)

Physics and chemistry of surfaces

Photocatalysis

### Administrative Appointments:

**Member** of work group of synthesizing chemical material in Chemistry and Chemical Engineering Research Center of Iran (CCERCI) **March 2016-Present**

**Head** of the Central Laboratory in Chemistry and Chemical Engineering Research Center of Iran (CCERCI) **September 2012- May 2014**

**Responsible for exhibition stands** of CCERCI in 7<sup>th</sup> Iran Nano international Nanotechnology Festival (**October 2014**)

**Responsible for exhibition stands** of CCERCI in 6<sup>th</sup> Iran Nano international Nanotechnology Festival (**October 2013**)

**Responsible for exhibition stands** of CCERCI in 5<sup>th</sup> Iran Nano international Nanotechnology Festival (**October 2012**)

### Academic Appointments:

**October 2020- present**

Assistant Professor, Dept. of Physical Chemistry, Chemical Process Development Institute, Chemistry and Chemical Engineering Research Center of Iran (CCERCI), Tehran, Iran.

### **February 2015- October 2020**

Assistant Professor, Dept. of Physical Chemistry, Chemical Process Development Institute, Chemistry and Chemical Engineering Research Center of Iran (CCERCI), Tehran, Iran.

### **July 2006 – February 2015**

Research Assistant, Dept. of Physical Chemistry, Chemical Process Development Institute, Chemistry and Chemical Engineering Research Center of Iran (CCERCI), Tehran, Iran.

### **September 2010 – August 2012**

Invited Lecturer, Dept. of Chemistry, Faculty of Engineering, South Tehran Branch, Islamic Azad University.

### **Academic Membership:**

- Member of Iran Nanotechnology Initiative Council, 2005- present, Tehran, Iran.
- Member of Scanning Probe Microscopy (SPM) Work Group, Iran Nanotechnology Laboratory Network, Iran Nanotechnology Initiative Council, 2011- present, Tehran, Iran.

- Member of Scanning Electron Microscopy (SEM) Work Group, Iran Nanotechnology Laboratory Network, Iran Nanotechnology Initiative Council, 2012- present, Tehran, Iran.

### *Honors and Awards:*

- **2006**, the top student of Physical Chemistry in M.Sc. program of the University of Kashan, Kashan, Iran.
- **2012**, the top student of Physical Chemistry in Ph.D. program of the University of Kashan, Kashan, Iran.
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- **2012**, Awarded as best research associate in Chemistry and Chemical Engineering Research Center of Iran (CCERCI), Tehran, Iran.

### *Scientific Publication:*

- 1- Aghapoor, Kioumars; Mohsenzadeh, Farshid; Darabi, Hossein Reza Sayahi, Hani; “Choline Chloride-based Eutectic Mixtures for Greener Synthesis of Quinoxaline-2,3-diol Derivatives and Terephthalaldehyde bis-(2-Aminophenylimine)” **Organic Preparations and Procedures International** (2021) 1-10.
- 2- Abdollahi, Hadi; Maleki, Soudabeh; **Sayahi, Hani**; Gharabaghi, Mahdi; Karimi Darvanjooghi, Mohammad Hossein; Magdouli, Sara;

- Kaur Brar, Satinder; “Superadsorbent Fe<sub>3</sub>O<sub>4</sub>-coated carbon black nanocomposite for separation of light rare earth elements from aqueous solution: GMDH-based Neural Network and sensitivity analysis” **Journal of Hazardous Materials** 416 (2021) 125655.
- 3- Aghapoor, Kioumars; Mohsenzadeh, Farshid; Darabi, Hossein Reza **Sayahi, Hani**; “Crystalline salicylic acid as an efficient catalyst for ultrafast Paal–Knorr pyrrole synthesis under microwave induction” **J. Chem. Sci.** 133 (2021) 1-8.
- 4- **Hani, Sayahi**; Kioumars, Aghapoor; Farshid, Mohsenzadeh; Mina, Mohebi Morad; Hossein Reza, Darabi; “TiO<sub>2</sub> nanorods integrated with titania nanoparticles: Large specific surface area 1D nanostructures for improved efficiency of dye-sensitized solar cells (DSSCs)” **Journal of Solar energy** 215 (2021) 311-320.
- 5- Nazarian, R; Darabi, H. R; Aghapoor, K; Firouzi, R; **Sayahi, H**; “A highly sensitive "ON-OFF" optical sensor for the selective detection of cyanide ions in 100% aqueous solutions based on hydrogen bonding and water assisted aggregation induced emission” **Chem Commun (Camb)** 56 (2020) 8992-8995.
- 6- Aghapoor, Kioumars; Mohsenzadeh, Farshid; Darabi, Hossein Reza **Sayahi, Hani**; Jalali, Mohammad Reza; “ZnCl<sub>2</sub>/Urea Eutectic Solvent as Stable Carbonylation Source for Benign Synthesis of 2–

- Benzimidazolones and 2-Imidazolones: An Effective Strategy for Preventing NH<sub>3</sub> Gas Evolution” **Chemistry Select** 4(2019) 11093-11097.
- 7- Assadollahnejad, Nazafarin; Kargar, Maryam; Darabi, Hossein Reza; Abouali, Negar; Jamshidi, Shadi; Sharifi, Ali; Aghapoor, Kioumars; **Sayahi, Hani** ; “A new ratiometric, colorimetric and “turn-on” fluorescent chemosensor for the detection of cyanide ions based on a phenol–bisthiazolopyridine hybrid” **New Journal of Chemistry** 43 (2019) 13001-13009.
- 8- **Sayahi, Hani**; Mohsenzadeh, Farshid; Hossein Reza Darabi; Aghapoor, Kioumars; “Facile and economical fabrication of magnetite/graphite nanocomposites for supercapacitor electrodes with significantly extended potential window” **Journal of Alloys and Compounds** 778 (2019) 633-642.
- 9- Aghapoor, Kioumars; Mohsenzadeh, Farshid; **Sayahi, Hani**; Rastgar, Saeed; Hossein Reza Darabi; “Green synthesis of 1,3-dihydrobenzimidazol-2-ones from aromatic diamines by microwave in a tetrabutylammonium bromide–ethanol molten salt paste” **Environmental Chemistry Letters** 16(2018) 1109-1116.
- 10- Hamzehloo, Majid; Karimi, Jahangir; Aghapoor, Kioumars; **Sayahi, Hani**; Darabi, Hossein Reza; “The synergistic cooperation between

- MCM-41 and azithromycin: a pH responsive system for drug adsorption and release” **Journal of Porous Materials** 25(2017) 1275-1285.
- 11- **Hani Sayahi**; “Surface Energy” Energy Encyclopedia, **Iranian Encyclopedia Foundation** (2017).
- 12- **Hani Sayahi**; “Energy and Creation” Energy Encyclopedia, **Iranian Encyclopedia Foundation** (2017).
- 13- **Hani Sayahi**; “Gray Energy” Energy Encyclopedia, **Iranian Encyclopedia Foundation** (2017).
- 14- **Sayahi, Hani**; Mohsenzadeh, Farshid; Hamadani, Masood; “Cost-effective fabrication of perdurable electrodeposited TiO<sub>2</sub> nano-layers on stainless steel electrodes applicable to photocatalytic degradation of methylene blue” **Research on Chemical Intermediates** 45 (2017) 4275-4286.
- 15- Darabi, Hossein Reza; Rastgar, Saeed; Khatamifar, Ehsan; Aghapoor, Kioumars; **Sayahi, Hani**; Firouzi, Rohoullah; “Practical and theoretical aspects of Wacker oxidation of tolanophanes: Synthesis and characterization of novel diketonic cyclophanes” **Applied Organometallic Chemistry** (2017) e3812.
- 16- **Hani Sayahi**; “Specific Energy” Energy Encyclopedia, **Iranian Encyclopedia Foundation** (2016).



- 17- Hossein Reza Darabi; Maryam Kargar; Roghayeh Hajipoor; Negar Abouali; Kioumars Aghapoor ; Khosrow Jadidi; Behrouz Notash; **Hani Sayahi**; “Synthesis and structure of 2,6-bis(2-methoxyphenyl)dithiazolo[4,5-b:5',4'-e]pyridine) as a novel fluorescent sensor: different recognition of transition metal ions and proton” **Tetrahedron Letters** 57 (2016) 256–259.
- 18- Kioumars Aghapoor; Farshid Mohsenzadeh; Hossein Reza Darabi; **Hani Sayahi**; Yadollah Balavar “L-Tryptophan-catalyzed Paal–Knorr pyrrole cyclocondensation: an efficient, clean and recyclable organocatalyst” **Research on Chemical Intermediate** 42 (2016) 407-415.
- 19- Masood Hamadianian; **Hani Sayahi**; Alireza Zolfaghari; Vahid Jabbari; “The Modified Electrode Position of Uniform and Defect-free TiO<sub>2</sub> Nanolayer onto Stainless Steel Substrate with Enhanced Photocatalytic Performance” **Nano Research & Applications** 1 (2015) 1-5.
- 20- Kioumars Aghapoor; Mostafa M. Amini; Khosrow Jadidi; Farshid Mohsenzadeh; Hossein Reza Darabi; **Hani Sayahi**; Mohammad Reza Jalali “Synthesis and stability of L-tryptophan adsorbed on Ti/MCM-41 as a catalyst for the regioselective aminolysis of styrene oxide” **Solid State Sciences** 49 (2015) 10-17.

- 21- **Hani Sayahi**; Masood Hamadani; Farshid Mohsenzadeh; Kioumars Aghapoor; Mohammad Ali Kiani “Enhanced Efficiency of Dye–sensitized Solar Cells Based on Bulk Synthesized TiO<sub>2</sub> Nanorods Annealed at Different Temperatures” **J. Chin. Chem. Soc** 62 (2015) 811-816.
- 22- Kiani, M. A; Abbasnia Tehrani, M; **Sayahi, H** “Reusable and robust high sensitive non-enzymatic glucose sensor based on Ni(OH)<sub>2</sub> nanoparticles” **Analytica Chimica Acta** 839 (2014) 26-33.
- 23- Hossein Reza Darabi, Atefeh Roozkhosh, Mohammad Jafar Tehrani, Kioumars Aghapoor, **Hani Sayahi**, Yadollah Balavar, Farshid Mohsenzadeh, “Characterization of ester- or thioamide-functionalized single–wall carbon nanotube–azithromycin conjugates” **Applied Surface Science** 288 (2014) 122-129.
- 24- **Hani Sayahi**, M. A. Kiani, S. H. Kazemi,”Ultrasonic-assisted synthesis of magnetite/carbon nanocomposite for electrochemical supercapacitor” **Journal of Solid State Electrochemistry**, 18 (2014) 535-543.
- 25- M. Rastgar, A. R. Zolfaghar, H. R. Mortezaheb, **H. Sayahi**, H. R. Naderi, “ Photocatalytic/Adsorptive removal of methylene blue dye by electrophoretic nanostructured TiO<sub>2</sub>/Montmorillonite composite films” **Journal Advance Oxide Technology**, 16 (2013)292-297.

- 26- Masood Hamadanian, **Hani Sayahi**, Alireza Zolfaghari, "Modified multistep electrophoretic deposition of TiO<sub>2</sub> nanoparticles to prepare high quality thin films for dye-sensitized solar cell", **Journal of Materials Science**, 47 (2012) 5845-5851.
  
- 27- M. Hamadanian, **H. Sayahi**, A. Zolfaghari, "Investigating the effects of post-heat treatment temperatures on the structure of prepared nanorod by hydrothermal method", **Journal of Nanostructures (JNS)**, 1 (2012) 237-242.
  
- 28- M. Hamadanian, **H. Sayahi**, A. Zolfaghari, "Effect of large TiO<sub>2</sub> Nanoparticles as Light Scatter in Matrix of Small Nanoparticles to Improve the Efficiency in Dye- Sensitized Solar Cell", **Journal of Nanostructures (JNS)**, 1 (2012) 139-143.
  
- 29- A. Zolfaghari, K. Nasiri Avanaki, H. Z. Jooya, **H Sayahi**, "Optimization of the operational controlling parameters in direct photocatalytic oxidation of water dissolved pollutants on nanostructured TiO<sub>2</sub> thin film electrodes". **J. Semicond. Sci. Technol.** 22 (2007) 653-658.

#### **Research Projects:**

- 1- "Determining the appropriate precursors, manufacturing and characterization of heterogeneous catalysts, for use in the production of acrylonitrile from propylene on laboratory scale" **In press.**

- 2- “Investigating, control and prevent the germination of sugar beet seed using seed coating method”, **In press.**
- 3- “Feasibility study of industrial scale cobalt acetate+4H<sub>2</sub>O production along with preliminary laboratory-practical studies”, **2021-2021.**
- 4- “Feasibility study and synthesizing Iron oxide nanostructure (Fe<sub>3</sub>O<sub>4</sub>) coated with polysaccharide on laboratory scale”, **2020-2021.**
- 5- “Investigating the effects of the carbon type electrodes on the prepared graphene structure using electrochemical method to apply in energy storage”. (No. 97008082), Iranian National Science Foundation (INSF), **2019-2021.**
- 6- “Feasibility study and synthesizing Iron oxide nanostructure (Fe<sub>3</sub>O<sub>4</sub>) coated with polysaccharide on laboratory scale”, **2020-2021.**
- 7- “Synthesize and characterization of magnetic iron oxide nanoparticles / graphite composite by ultrasonic waves to use in supercapacitors compared with magnetite/ carbon black composite”. (No. 94802941), Iranian National Science Foundation (INSF), **2015-2017.**
- 8- “Investigation of Dye-sensitized solar cells based on modified electrophoretic method”. Chemistry and Chemical Engineering Research Center of Iran (CCERCI), **2014-2015.**

- 9- “Synthesizing Titanium dioxide nanorods by hydrothermal method and using them in Dye sensitized solar cells (DSSCs)”. (No. 92006755), Iranian National Science Foundation (INSF), **2013-2014**.
- 10- “Investigation the synthesized composite of magnetic iron oxide nanoparticles with carbon by ultrasonic waves to use in electrochemical capacitors”. (No. 91002349), Iranian National Science Foundation (INSF), **2012-2013**.
- 11- “Preparation of supercapacitor based on the doping carbon mesoporous”. (No. 90004915), Iranian National Science Foundation (INSF), **2011-2012**.
- 12- “Preparation of supercapacitor based on the doping carbon mesoporous”. (No. 90004915), Iranian National Science Foundation (INSF), **2011-2012**.
- 13- “Preparation of supercapacitor based on the doping carbon mesoporous”. (No. 90004915), Iranian National Science Foundation (INSF), **2011-2012**.
- 14- “Increase the efficiency of Dyes Sensitized Solar Cells: Theoretical and Experimental Investigation”. (No. 90003199), Iranian National Science Foundation (INSF), **2011-2012**.

- 15- “Attachment of Azithromycin on Carbon Nanotube”. (No. 87041861), Iranian National Science Foundation (INSF), **2008-2010**.
- 16- “Synthesizing Conjugated Superpara Magnetite Nanoparticles for Drug Delivery and MRI Applications”. CCERCI and Tehran University of Medical Science (Vice-Chancellor for research), **2008-2010**.

#### Scientific Conferences and Symposiums:

**I participated in many local and international seminars; some of international seminars are as follow:**

- H. Sayahi, K. Aghapoor, Z. Mehrvar, F. Mohsenzadeh, H. R. Darabi, “Characterizing the synthesized graphite/magnetite nano-composites using ultrasonic waves” The 19th Iranian Inorganic Chemistry Conference (September 2017).
- M. Fallahnejad, F. Adhami, H. Sayahi, H. R. Darabi, “Investigating the Fenton reaction of Fe<sub>3</sub>O<sub>4</sub>@MCM-41 at degradation of aqueous pollutants” The 19th Iranian Inorganic Chemistry Conference (September 2017).
- H. Sayahi, Z. Mehrvar, M. A. Kiani, “Large-scale synthesis of graphene and graphene oxide using electrochemical method” 12th Biennial Electrochemistry Seminar, University of Isfahan (May 2017).

- Armin Najafkhani, Hadi Einaki, H. Sayahi, M.A.Kiani, "Polyvinyl alcohol Electrospun Nanofibers Used as a Substrate in Different aspects in Electrochemical Devices" The 23rd Iranian Seminar of Analytical Chemistry (August 2016).
- Armin Najafkhani, H. Sayahi, Farzaneh Bahmani, S.H. Kazemi, M.A.Kiani, "Synthesis and Characterization of Hierarchical 3D Nanosheets of NiMoO<sub>4</sub>@graphene for Methanol Electro-Oxidation" The 23rd Iranian Seminar of Analytical Chemistry (August 2016).
- Fatemeh Safinia, H. Sayahi, M.A.Kiani, "Electrochemical studies of some anti-pyretic and anti-histamine drugs" The 23rd Iranian Seminar of Analytical Chemistry (August 2016).
- M. Abbasnia Tehrani, M.A. Kiani, H. Sayahi, "Recovery of high pure alumina from aluminum hazardous waste using facile and inexpensive method" Proceedings of Iran International Aluminum Conference (IIAC2016) (May 2016).
- Sayahi. H, Aghapoor, K, Kiani. M. A, Mohsenzadeh, F, "Investigation photocatalytic effects of electrochemical stabilized titanium oxide nano layer on conductive substrates" The 1st Iranian Congress of Chemical Biotechnology Chemistry (March 2016).

- Neda Dianat, M. A. Kiani, H. Sayahi, “Electrodeposition of polydiphenylamine nano-sheets on activated carbon fibers and its application in supercapacitors” The 22rd Iranian Seminar of Analytical Chemistry (January 2016).
  
- Kh. Ghardashi, A. Tarlani, H. Sayahi, M. Eslami moghadam, “Non-enzymatic glucose nano-biosensor based on copper oxide” The 22rd Iranian Seminar of Analytical Chemistry (January 2016).
  
- M. A. Kiani, N. Dianat, H. Sayahi, “Supercapcitive behavior of nanostructured polydiphenylamin” Asian Nano Forum Conference, Kish Island, Iran (March 2015).
  
- H. Sayahi, M. A. Kiani, A. Zolfaghari, Z. Jamshidi, “Systematic Study of Fe<sub>3</sub>O<sub>4</sub>/ CB Nanocomposite as Electrode Material for Supercapacitors” 63rd Annual Meeting of the International Society of Electrochemistry Prague, Czech Republic, (August 2012).
  
- M. Hamadani, H. Sayahi, A. Zolfaghari, Z. Jamshidi, “Multistep electrophoretic deposition of TiO<sub>2</sub> nanoparticles to prepare high quality thin films for Dye-sensitized solar cell”, Proceeding of the 4th International Conference on Nanostructures (ICNS4), Kish Island, Iran (March 2012).



- A. Zolfaghari, H. Naderi, M. Rastegar, H. Sayahi, “Preparation of MnO<sub>2</sub>/Carbon Black Nanocomposites Using Sonochemistry Method for Electrochemical Supercapacitors”, Proceedings of the International Conference on Nanotechnology: Fundamentals and Applications Ottawa, Ontario, Canada, (August 2010).
  
- A. Zolfaghari, H. Naderi, M. Rastegar, H. Sayahi, “Synthesis of MnO<sub>2</sub>/Graphite Nanocomposites using Sonochemistry Method for Electrochemical Supercapacitors. Proceedings of the International Conference on Nanotechnology”, Fundamentals and Applications Ottawa, Ontario, Canada, (August 2010).
  
- A Zolfaghari, K. Nasiri Avanaki, H. Z. Jooya, H. Sayahi. “Theoretical Models for the Electron Flux and the Quantum Efficiency Characteristics of Nanostructured TiO<sub>2</sub> Thin Films in Photoelectrochemical Cells”, Kharkiv, Ukraine (June 2007)
  
- A. Zolfaghari, F. Ataherian, H. Sayahi, H. Jooya, “Nanostructured Iron Oxide for aqueous electrochemical supercapacitor”, Poster presented in 58th Annual Meeting of International Society of Electrochemistry, Banff, Canada (September 2007).
  
- A. Zolfaghari, Z. Hariri, F. Roshani, H. sayahi, H. jooya, “Thickness Controlled Electrodeposition of Titanium Oxide Thin Film Electrode”.

Poster presented in 58th Annual Meeting of International Society of Electrochemistry, Banff, Canada (September 2007).

- A. Zolfaghari, H. Z. Jooya, G. Vatankhah, H. Sayahi, K. Nasiri Avanaki, “Study of Titanium Oxide Nanolayer as Photoelectrochemical Solar Material”, Florence, Italy (August 2006 ).
- A. Zolfaghari, H. Sayahi, M. Hamedanian, “Electrodeposition of Titanium Oxide Nanolayer Photocatalyst on Foreign Substrates”, Lecture presented in 4th ISE spring meeting, Singapore (April 2006).

#### *Teaching Experiences:*

- 1- General Chemistry (bachelor degree)
- 2- Physical Chemistry I and II (bachelor degree)
- 3- Advanced Physical Chemistry (M.Sc degree)
- 4- Kinetic (M.Sc degree)
- 5- Molecular Spectroscopy (M.Sc degree)
- 6- Electrochemistry and Surface Chemistry (Ph.D and M.Sc degrees)
- 7- Non-Equilibrium Thermodynamics (Ph.D degree)

#### *Supervisor Of Graduate Thesis:*

- 1- M.Sc. of physical chemistry, Entitled “large-scale production of graphene and graphene oxide using electrochemical method”, CCERCI.

- 2- M.Sc. of physical chemistry, Entitled “Synthesis of magnetic nanoparticles (iron/carbon composite and Co-Mn core-shell ferrite spinels) and investigation of adsorption/desorption mechanism of Rare Earth Elements (Ce, La, Nd) from synthetic solution”, **Tehran University**.
- 3- M.Sc. of physical chemistry, Entitled “preparation of  $\text{PbO}_2\text{-TiO}_2$  anode using electrochemical method to produce perchlorate reactions”, **CCERCI**.
- 4- M.Sc. of physical chemistry, Entitled “Investigation the effect of  $\text{TiO}_2$  nano layer on stainless steel corrosion”, **CCERCI**.
- 5- Ph.D of physical chemistry, Entitled “Investigation the effect of graphite/ $\text{Fe}_3\text{O}_4$  nanostructures in fenton reaction to remove industrial pollutants”, **Azad University**.
- 6- M.Sc of Mining Engineering, Synthesis of  $\text{Fe}_3\text{O}_4$ /Carbon black nanocomposite for determining rare earth elements...”, **Tehran University/ CCERCI**.
- 7- M.Sc. of physical chemistry, Entitled “Metal-organic framework and their composites as efficient electrodes for supercapacitor application”, **CCERCI**.
- 8- M.Sc. of physical/inorganic chemistry, Entitled “Synthesis of metal oxides and their application in supercapacitors”, **CCERCI**.

### Advisor Of Graduate Thesis:

- 1- M.Sc. of analytical chemistry, Entitled “Influence of various carbon materials on TiO<sub>2</sub> nanoparticles-based dye sensitized solar cells efficiency”, **CCERCI**.
- 2- M.Sc. of analytical chemistry, Entitled “synthesizing Poly (diphenylamine)/graphene composite for using in supercapacitors”, **CCERCI**.
- 3- M.Sc. of inorganic chemistry, Entitled “Design of non-enzymatic glucose biosensor based on MWCNT nanocomposite”, **CCERCI**.
- 4- M.Sc. of analytical chemistry, Entitled “Design of non-enzymatic glucose nanobio synsor based on titanium-copper oxide properties”, **CCERCI**.
- 5- M.Sc. of analytical chemistry, Entitled “Investigation of methanol oxidation by nickel oxide based nanostructures”, **CCERCI**.

### Special Technical Skills:

- Application Packages: MS Office (ICDL), DOS, Oregin, Zview, chemistry software
- Computer Hardware: Adequate knowledge of Computer Hardware

### Devices Skills:

I have many experiences to use different devices especially the surface analyzing equipments, such as:

- Uv-Visible spectrophotometer
- Potantio-Galvano state (autolab Co.)
- Surface Tension Equipments (OCA, DCAT, SVT), (Dataphysics Co.)
- SPM techniques (DME Co.)
- SEM (T-scan Co.)
- Particle Size Analyzer (Nanotech Fritsch)
- Digital densitometer (Anton Paar Co.)

#### **Inventions:**

- Iranian patent No. 58285, Entitle “ Electrochemical deposition of titanium oxide on different substrates for degradation environment pollutants”

#### **Workshops:**

- 1- **“Workshops of Nanotechnology and Nanoscience (generally)”**  
University of Kashan , Iran (**June 2003**)

- 2- **“Workshop of SPM devices including AFM, STM, MFM, ECSTM, LFM methods”** which managed by Mahar Fan Abzar Co as DME Co representative ( **June 2009**)
- 3- **“Workshop of Surface Tension devices including OCA, DCAT, SVT methods”** which managed by Mahar Fan Abzar Co as Dataphysics Co representative ( **July 2010**)
- 4- **“1<sup>st</sup> Application of Novel Electrochemical Methods for Evaluation of Coatings”** by Institute for Color Science and Technology, Tehran Iran (**January 2011**)
- 5- **“1<sup>st</sup> International Workshop on Nanostructured Solar Cells and Solar System”** by university of Kashan, Iran, (April 2011)
- 6- **“Theoretical and Computational Chemistry”** workshop by Chemistry and Chemical Engineering Research Center of Iran (**January 2012**)
- 7- **“4<sup>th</sup> International Conference on Nanostructures”**, Kish Island, Iran, (**March 2012**)
- 8- **“High Performance of Liquid Chromatography (HPLC)”** workshop by Chemistry and Chemical Engineering Research Center of Iran (**February 2013**)