

**Maryam Mirza-Aghayan**

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## **Education**

- 1992-1993** M.Sc. in Organic Chemistry, in the group of Prof. Max Koenig with the title:  
**Influence des ultrasons sur la réaction de Michael asymétrique,**  
**Université Paul Sabatier, Toulouse, France**
- 1993-1996** Ph.D. in Organic Chemistry, in the group of Prof. Max Koenig with the title:  
**Réaction de cyclozirconation en série hétéroélémentaire: application aux (di)**  
**phosphines chirales,**  
**Université Paul Sabatier, Toulouse, France**

## **Research Interest**

Graphene oxide and its derivatives  
Organometallic chemistry  
Catalytic reaction  
Organic synthesis  
Methodology in organic synthesis  
Heterocyclic chemistry

## Honors

Distinguished Researcher of Chemistry & Chemical Engineering Center of Iran, December 2004, Tehran, Iran

Distinguished Researcher of Chemistry & Chemical Engineering Center of Iran, December 2011, Tehran, Iran

Distinguished Researcher of Chemistry & Chemical Engineering Center of Iran, December 2013, Tehran, Iran

## Publications

1. **Maryam Mirza-Aghayan**, Amir Sepehr Moieni, Recent Progress in Palladium-Catalyzed Reduction with Organosilanes, *J. Organomet Chem.* 1025, **2025**, 123484.
2. **Maryam Mirza-Aghayan**, Maryam Heidarian, Mahdi Alizadeh, Pd-Isatin-Schiff base complex supported on graphene oxide as a catalyst for the Sonogashira cross-coupling reaction, *J. Organomet Chem.* 1009, **2024**, 123079.
3. Hamed Barzinmehr, **Maryam Mirza-Aghayan**, Maryam Heidarian, Isatin-Schiff base functionalized graphene oxide as a highly selective turn-on fluorescent probe for the detection of Pd(II) via photoinduced electron transfer pathway, *Spectrochim. Acta A Mol. Biomol. Spectrosc.* **2024**, 309, 123673.
4. **Maryam Mirza-Aghayan M**, Mahdi Alizadeh, Rabah Boukherroub, Copper iodide nanoparticles supported on modified graphene-based nanocomposite catalyzed CO<sub>2</sub> conversion into oxazolidinone derivatives, *Environmental Science and Pollution Research*, **2023**, 30, 119151–119167. <https://doi.org/10.1007/s11356-023-30590-w>.
5. Hamed Barzinmehr, **Maryam Mirza-Aghayan**, Rabah Boukherroub, Mechanistic insights into the roles of graphene oxide and its derivatives in organic transformations— a review, *Catal. Rev.* **2023**, 1-91, <https://doi.org/10.1080/01614940.2023.2232643>.
6. **Maryam Mirza-Aghayan M**, Amir Sepehr Moieni, Rabah Boukherroub, Graphene loaded with metal nanoparticles/complexes catalyzed cross-coupling reactions: A review, *J. Organomet Chem.* **2023**, 995:122737. <https://doi.org/10.1016/j.jorganchem.2023.122737>.

7. **Maryam Mirza-Aghayan**, Marzieh Mohammadi, Rabah Boukherroub, Katayoun Ravanavard, Functionalized reduced graphene oxide as a useful and efficient base catalyst for the preparation of 4*H*-pyran and pyran-like tacrine compounds and their antibacterial activity, *J. Heterocyclic Chem.* **2023**; 60:252–263.
8. **Maryam Mirza-Aghayan**, Marzieh Mohammadi, Rabah Boukherroub, Fullerene-C<sub>60</sub>/NH<sub>2</sub>: A recyclable heterogeneous catalyst for the green synthesis of chromene and pyrimidine derivatives and antibacterial evaluation, *J. Heterocyclic Chem.* **2022**; 59:1102–1115.
9. **Maryam Mirza-Aghayan**, Maryam Heidarian, Marzieh Mohammadi, Rabah Boukherroub, Synthesis and characterization of a novel multi-functionalized reduced graphene oxide as a pH-sensitive drug delivery material and a photothermal candidate, *Applied Surface Science* 583 (2022) 152568.
10. **Maryam Mirza-Aghayan**, Mandana Saeedi and Rabah Boukherroub, An efficient CuO/rGO/TiO<sub>2</sub> photocatalyst for the synthesis of benzopyranopyrimidine compounds under visible light irradiation, *New J. Chem.*, **2022**, 46, 3817–3830.
11. **Maryam Mirza-Aghayan**, Marzieh Mohammadi, Rabah Boukherroub, Synthesis and characterization of palladium nanoparticles immobilized on graphene oxide functionalized with triethylenetetramine or 2,6-diaminopyridine and application for the Suzuki cross-coupling reaction, *J. Organomet. Chem.* **2022**, 957, 122160.
12. **Maryam Mirza-Aghayan**, Mandana Saeedi, Boukherroub, R. Carbon–nitrogen bond formation using modified graphene oxide derivatives decorated with copper complexes and nanoparticles, *Appl. Organometal. Chem.*, **2021**, 35, e6327.
13. **Maryam Mirza-Aghayan**, Mandana Saeedi, Boukherroub, R. Cu<sub>2</sub>O/reduced graphene oxide/TiO<sub>2</sub> nanomaterial: An effective photocatalyst for azide-alkyne cycloaddition with benzyl halides or epoxide derivatives under visible light irradiation, *Appl. Organometal. Chem.*, **2020**; 34, e5928.
14. **Maryam Mirza-Aghayan**, Mohammadi, M, Ahmadi, Z., Boukherroub, R. Ultrasound assisted the synthesis of 1,3-dioxolane derivatives from the reaction of epoxides or 1,2-diols with various ketones using graphene oxide catalyst, *Catalysis Letters*, **2020**, 150, 2959–2969.

15. **Maryam Mirza-Aghayan**, Mohammadi, M, Addad, A., Boukherroub, R. Pd nanoparticles supported on reduced graphene oxide as an effective and reusable heterogeneous catalyst for Mizoroki-Heck coupling reaction, *Appl. Organometal. Chem.*, **2020**, 34: e5524.
16. **Maryam Mirza-Aghayan**, Mahdieh Molaee Tavana, Elaheh Golam Alipour Niazi, Rabah Boukherroub, Efficient and Regioselective Ring-opening of Epoxides with Carboxylic Acid Catalyzed by Graphite Oxide, *Lett. Org. Chem.*, **2020**, 17, 7:532-538.
17. **Maryam Mirza-Aghayan**, Tahmineh Baie Lashaki, An efficient one-pot synthesis of 2-Iminohexahydroquinazolin-5(6H)-one derivatives with pharmaceutical potential under catalyst-free conditions and antibacterial evaluation, *J. Appl. Res. Chem.* **1398**, Vol. 13, No. 2. 19-31.
18. **Maryam Mirza-Aghayan**, Meisam Kalantari, Rabah Boukherroub, Palladium oxide nanoparticles supported on grapheme oxide: A convenient heterogeneous catalyst for reduction of various carbonyl compounds using triethylsilane, *Appl. Organometal. Chem.*, **2019**, 33: e4837.
19. Reza Zadmard, Peyman Akbari-Moghaddam, Shukufe Darvishi, **Maryam Mirza-Aghayan**, A highly selective fluorescent chemosensor for NADH based on calix[4]arene dimer, *Tetrahedron*, **2017**, 73, 604.
20. Behzad Lotfi, Aliakbar Tarlani, Peyman Akbari-Moghaddam, **Maryam Mirza-Aghayan**, Ali Ahmadi, Peyghan, Jacques Muzart, Reza Zadmard, Multivalent Calix[4]arene-Based Fluorescent Sensor for Detecting Silver Ions in Aqueous Media and Physiological Environment, *Biosensors and Bioelectronic*, **2017**, 90, 290–297.
21. **Maryam Mirza-Aghayan**, Farzaneh Alvandi, Mahdieh Molaee Tavana, Rabah Boukherroub, Graphite oxide catalyzed synthesis of  $\beta$ -amino alcohols by ring-opening of epoxides, *Turkish J. Chem.*, **2017**, 41: 70-79.
22. Reza Zadmard, Peyman Akbari-Moghaddam, Shukufe Darvishi, **Maryam Mirza-Aghayan**, An Efficient Multi-Component Synthesis of Highly Functionalized Calix[4]arenes with Pronounced Binding Affinity toward  $\beta$ -Lactoglobulin, *Eur. J. Org. Chem.* **2016**, 3894-3899.
23. **Maryam Mirza-Aghayan**, Nahid Ganjbakhsh, Mahdieh Molaee Tavana, Rabah Boukherroub, Ultrasound-assisted direct oxidative amidation of benzyl alcohols catalyzed by graphite oxide, *Ultrason. Sonochem.*, **2016**, 32, 37-43.
24. **Maryam Mirza-Aghayan**, Mahdieh Molaee Tavana, Rabah Boukherroub, Sulfonated reduced graphene oxide as a highly efficient catalyst for direct amidation of carboxylic acids with amines using ultrasonic irradiation, *Ultrason. Sonochem.*, **2016**, 29, 371-379.

25. **Maryam Mirza-Aghayan**, Mahdiah Molaee Tavana, Rabah Boukherroub, Palladium nanoparticles supported on reduced graphene oxide as an efficient catalyst for the reduction of benzyl alcohol compounds, *Catalysis Communications*, **2015**, 69, 97–103.
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27. Aliakbar Tarlani, Mahtab Fallah, Behzad Lotfi, Avidah Khazraei, Sommayeh Golsanamlou, Jacques Muzart, **Maryam Mirza-Aghayan**, New ZnO nanostructures as non-enzymatic glucose biosensors, *Biosensors and Bioelectronics*, **2015**, 67, 601-607.
28. **Maryam Mirza-Aghayan**, Mahdiah Molaee Tavana, An efficient and improved method for the conversion of oxiranes into thiiranes using graphite oxide, *J. Sulfur Chem.*, **2015**, Vol. 36 (1), 30-35.
29. **M. Mirza-Aghayan**, S. Zonoubi, M. Molaee Tavana, R. Boukherroub, Ultrasound assisted direct oxidative esterification of aldehydes and alcohols using graphite oxide and Oxone, *Ultrason. Sonochem.*, **2015**, 22, 359-364.
30. **Maryam Mirza-Aghayan**, Mahdi Alizadeh, Mahdiah Molaee Tavana, Rabah Boukherroub, Graphite oxide: a simple and efficient solid acid catalyst for the ring-opening of epoxides by alcohols, *Tetrahedron Lett.*, **2014**, 55, 6694-6697.
31. **Maryam Mirza-Aghayan**, Mahdiah Molaee Tavana, Rabah Boukherroub, Direct oxidative synthesis of nitrones from aldehydes and primary anilines using graphite oxide and Oxone, *Tetrahedron Lett.*, **2014**, 55, 5471-5474. **ChemInform**
32. **M. Mirza-Aghayan**, F. Asadi, R. Boukherroub, Graphite oxide-promoted one-pot synthesis and oxidative aromatization of Hantzsch 1,4-dihydropyridines, *Monatsh. Chem.*, **2014**, 145, 1919-1924.
33. **M. Mirza-Aghayan**, M. Rahimifard, R. Boukherroub, Graphite oxide as an efficient solid reagent for esterification reactions, *Turkish J. Chem.*, **2014**, 38: 859-864.
34. **M. Mirza-Aghayan**, M. Molaee Tavana, R. Boukherroub, Oxone/iron(II)sulfate/graphite oxide as a highly effective system for oxidation of alcohols under ultrasonic irradiation, *Tetrahedron Lett.*, **2014**, 55, 342-345.
35. **M. Mirza-Aghayan**, M. Molaee Tavana, M. Rahimifard, R. Boukherroub, Palladium on activated carbon catalyzed reductive amination of aldehydes and ketones by triethylsilane, *Appl. Organometal. Chem.*, **2014**, 28, 113-115.
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- acridine-calix[4]arene derivatives as new DNA binding agents via multicomponent reaction, *Supramolecular Chem.*, **2014**, 442-449.
37. **Mirza-Aghayan M.**, Abolghasemi-Malakshah, M. An efficient one-pot synthesis of 6-oxo-4-aryl-1,4,5,6-tetrahydropyridines with pharmaceutical potential in water, *J. Appl. Res. Chem.* **2014**, Vol. 7, No. 4. 47-54.
38. **M. Mirza-Aghayan**, R. Boukherroub, M. Rahimifard, Palladium(II) acetate-catalyzed reduction of imines to the corresponding amines by triethylsilane, *Appl. Organometal. Chem.*, **2013**, 27, 174-176.
39. **Maryam Mirza-Aghayan**, Farhad Saravani, Ali Akbar Tarlani, Mohammad Saeed Abaee, Rabah Boukherroub, One pot synthesis of 2-amino-tetrahydrothiopyrano[4,3-b]pyran-3-carbonitrile derivatives using mesoporous NH<sub>2</sub>-MCM-41, *Monatsh. Chem.*, **2013**, 144, 1699-1704.
40. Ali Akbar Tarlani, Monika Joharian, Mahtab Fallah, Jacques Muzart, **Maryam Mirza-Aghayan**, Efficient and regioselective alcoholysis of styrene oxide by aluminium phosphotungstate nanocatalyst; on the temperature dependence aspect, *Middle-East J. Sci. Res.*, **2013**, 14 (9) 1149-1151.
41. Reza Zadmard, Hajar Entezari, Parinaz Ataeian and **Maryam Mirza-Aghayan**, Water Soluble Molecular Capsules via Multiple Ionic Interactions, *Lett. Org. Chem.*, **2013**, 10, 147-149.
42. **M. Mirza-Aghayan**, N. Mohammadian, M. Abolghasemi Malakshah, R. Boukherroub, A. A. Tarlani, Amino-functionalized SBA-15 catalyzed one step synthesis of 2-amino-5-cyano-4-hydroxy-6-aryl pyrimidines, *J. Iran. Chem. Soc.* **2013**, vol 10, 3, 559-563.
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50. **Mirza-Aghayan M.**, Moradi A., Bolourtchian M. A novel and efficient one-pot method to Biginelli-like scaffolds, *J. Iran. Chem. Soc.* **2010**, vol 7, no. 1, 269-274.
51. **Mirza-Aghayan M.**, Moradi A., Bolourtchian M., Boukherroub R., A cheap and efficient protocol for the synthesis of tetrahydroquinazolinone, dihydropyrimidinone and pyrimidinone derivatives, *Synthetic Communication*, **2010**, 40, 8-20.
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53. **Mirza-Aghayan M.**, Khoshkameh Langrodi M., Rahimifard M., Boukherroub R. Me<sub>3</sub>SiCl and Et<sub>3</sub>SiI-promoted one-pot synthesis of 1,4-dihydropyridine derivatives, *Appl. Organometal. Chem.*, **2009**, 23, 267-271.
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## Conferences

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75. **Maryam Mirza-Aghayan**, Maryam Heidarian, Synthesis and Characterization of a Novel Multi-Functionalized Nanomaterial Hybrid from Graphene Oxide, 28<sup>th</sup> Iranian conference in organic chemistry, **2022**.
76. Maryam Heidarian, **Maryam Mirza-Aghayan**, A Palladium Schiff-base complex immobilized on graphene oxide as a catalyst for the Sonogashira cross-coupling reaction, 7th Zeolite Conference of Iranian Chemical Society, **2022**.

77. **Maryam Mirza-Aghayan**, Meisam Kalantari, Reduction of carbonyl compounds using palladium nanoparticles supported on reduced graphene oxide, 25 th Iranian seminar of organic chemistry, **2017**, University of Science and Technology, Tehran, Iran.
78. **Mirza-Aghayan, M.**, Molaee Tavana, M., Boukherroub, R. Functionalized Reduced Graphene Oxide as a Highly Efficient Catalyst for Direct Amidation, Proceedings of the 6th International Conference on Nanostructures (ICNS6) 7-9 March **2016**, Kish Island, Iran.
79. **Maryam Mirza-Aghayan**, Somayeh Zonubi, Mahdiye Molaee tavana, Oxidation of primary alcohols to esters under ultrasonic irradiation with using graphite oxide reagent, 21st Iranian Seminar of Organic Chemistry, Ilam University, 13-15 March **2014**.
80. **M. Mirza-Aghayan**, M. Javaheri Kachousangi, R. Zadmard, Graphite oxide: efficient catalyst for synthesis of xanthene-calix[4]arene derivative, The 16th Iranian Chemistry Congress, Yazd University, Iran, 7-9 September **2013**.
81. **M. Mirza-Aghayan**, M. Yarmohammadi, Synthesis of new di-acridine calix[4]arene derivatives and investigation on its binding ability with calf thymus DNA, 20th Iranian Seminar of Organic Chemistry, Bu-Ali Sina University, Iran, 3-5 July **2013**.
82. **M. Mirza-Aghayan**, F. Asadi, Synthesis of pyridine derivatives using graphite oxide, 20th Iranian Seminar of Organic Chemistry, Bu-Ali Sina University, Iran, 3-5 July **2013**.
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84. **M. Mirza-Aghayan**, N. Mohammadian, R. Zadmard, A. A. Tarlani, Efficient one-pot method for synthesis of pyrimidine-calix[4]arene using amino-functionalized SBA-15 catalyst, 19th Iranian Seminar on Organic Chemistry, University of Vali-e-Asr, Rafsanjan, Iran, 5-7 September **2012**.
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- 86. M. Mirza-Aghayan**, N. Mohammadian, A. A. Tarlani, A novel and efficient one step synthesis of 2-amino-pyrimidines using amino-functionalized SBA-15 catalyst, 18th Iranian Seminar of Organic Chemistry, University of Sistan & Baloochestan, Zahedan, Iran, 7-9 March **2012**.
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- 89. M. Mirza-Aghayan**, E. Kashef-Azar-Mehrabani, Graphite Oxide: A Efficient Carbocatalyst for Oxidation Reactions, 18th Iranian Seminar of Organic Chemistry, University of Sistan & Baloochestan, Zahedan, Iran, 7-9 March **2012**.
- 90. M. Mirza-Aghayan**, E. Kashef-Azar-Mehrabani, M. Rahimifard, A novel and efficient one-pot method for synthesis of 3,4-dihydropyrimidin-2-(1*H*)-ones by carbon catalyst, 18th Iranian Seminar of Organic Chemistry, University of Sistan & Baloochestan, Zahedan, Iran, 7-9 March **2012**.
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- 92. M. Mirza-Aghayan**, M. Nemati, R. Zadmard, A novel an efficient one pot method for synthesis of acridine-calix[4]arene derivatives via multicomponent reaction, 15th Iranian Chemistry Congress, Bu-Ali Sina University, Hamedan, Iran, 4-6 September **2011**.
- 93. M. Mirza-Aghayan**, S. Nazmdeh, M. Rahimifard, One-Pot synthesis of hexahydroquinoline derivatives under catalyst-free conditions, 15th Iranian

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