



## Mai Saleh Hussien

### Bibliography



Dr. Mai Saleh Hussien (Mai S.A. Hussien) received her Ph.D. degree in photocatalysis in 2016 from Ain Shams University, Cairo, Egypt. In 2021, She promoted to be an Associate Professor of Applied catalysis especially photocatalysis. She worked at the Physical chemistry Laboratory in the Department of Chemistry, Faculty of Education, Ain Shams University, for more than 10 years. She is a deputy director of the quality unit at Faculty of Education, Ain Shams University.

She is the director of the academic advising unit at Faculty of Education, Ain Shams University. Her research interests include nanomaterials; nano-metal oxide thin films/powders, nano-metal sulphides thin films/powders and their characterization, polymeric materials, graphene oxide/nanocomposite and their characterization. Dr. Mai participates in building NLEBA in ASU, Egypt to produce nanomaterials via cost-effective techniques and apply these materials in wastewater treatment through photocatalysis. She published 29 papers with h-index of 6, total citations of 72 and RG score of 20.94.

The main objective of her scientific production is to produce smart and novel nanomaterials using novel technologies that play vital role in solving environmental and biological problems in various fields including: water treatment, Energy, Fuel and Biomedical applications.

**ORCID ID:** <https://orcid.org/0000-0001-6462-1584>

**URL:** <https://publons.com/researcher/AAO-8353-2020/>

<https://scholar.google.com/citations?user=PPmcDCMAAAAJ&hl=en>

<https://www.researchgate.net/profile/M-Hussien-2/scores>

**Scopus Author ID:** 57200525859



## Academic Information

---

- **November 2015:** PHD Degree of Teacher's Preparation in Science (Physical Chemistry) titled in *"Studies on Photocatalytic degradation of some organic pollutants using newly modified catalysts."*
- **November 2012:** Master Degree of Teacher's Preparation in Science (Physical Chemistry) titled in **"Removal of some organic pollutants from environmental liquid wastes using photo-catalytic method"** Faculty of Education - Ain Shams University – **with Excellent Degree.**
- **June 2009:** Special Diploma in Teacher's Preparation in Physical Chemistry Faculty of Education - Ain Shams University
- **June 2008:** General Diploma in Teacher's Preparation in Chemistry Faculty of Education - Ain Shams University
- **June 2007:** B.S Degree in Science and Education- Chemistry Department Faculty of Education - Ain Shams University – **with very good with Honours degree**, The first installment.

## Work experience

---

- June 2021 – current : **Associate professor of physical chemistry in chemistry department Faculty of Educations Ain shams university.**
- November 2015 – 2021: **lecturer in chemistry department Faculty of Educations Ain shams university.**
- November 2012 – November 2015: **Assistant lecturer in chemistry department Faculty of Educations Ain shams university**
- May 2008 - November 2012: **Demonstrator in chemistry department Faculty of Educations Ain shams university.**

## Teaching Courses

---

---



## A- Bachelor's Courses

- General Chemistry (1) for first year students in the two divisions of Chemistry and Physics (English and Arabic divisions).
- Physical Chemistry ((I), which includes Surface chemistry and colloids for students of the second year of the Chemistry Division (Arabic and English).
- Physical Chemistry ((II), which includes thermodynamics for students of the second year of the chemistry division (Arabic and English sections).
- Physical Chemistry ((III) which includes phase rule & kinetic theory of gas for students of the third year of the chemistry division (Arabic and English sections).
- Physical Chemistry ((VI), which includes Photochemistry for students of the fourth year of the Chemistry Division (Arabic and English sections).
- Surface chemistry for students of the fourth year, Basic Math, Chemistry Division (Arabic and English).
- Information and communication technologies in education and research for first-year students in the Chemistry Division (Arabic and English).

## B- Postgraduate Courses

- Physical Chemistry (Optical) for students of the General Diploma for Teacher Preparation in Science (specialty: Chemistry).

Teaching the practical course in physical chemistry (photonics) to students of the General Diploma for Teacher Preparation in Science (specialization: Chemistry).

- Physical chemistry for doctoral students to prepare the teacher in science (specializing in physical chemistry).
- General chemistry for students of the professional diploma in general to prepare the teacher in science (chemistry specialization).

## Scientific Community

- 
- The Egyptian Society for Materials Research.
-



- The Egyptian Chemical Society.

## Scholarships and scientific visiting

---

- Visiting university of Prince Edward Island UPEI, Canada for three months under a mutual exchange agreement, 25-1-2014 to 25-3-2014.

## Awards and Honors

---

- A certificate of thanks and appreciation from the Faculty of Education, Ain Shams University, in appreciation of her efforts as a coordinator in preparing quality files and participating in preparing the department's memory book at the Department of Chemistry during the 2015-2016 academic year.
  - A certificate of thanks and appreciation from the Faculty of Education, Ain Shams University, in appreciation of her efforts as a coordinator in preparing quality files in the Department of Chemistry during the academic year 2016-2017.
  - A certificate of thanks and appreciation from the Department of Chemistry, Ain Shams Education, in appreciation of its continuous efforts in the committee preparing the department's schedule during the academic year 2016-2017.
  - Certificate of Honor on the 67th Flag Day at Ain Shams University in recognition of the excellence of her doctoral thesis as the best doctoral dissertation this year at the Faculty of Education, Ain Shams University 2017
  - A certificate of thanks and appreciation from the Faculty of Education, Ain Shams University, in appreciation of its efforts in supporting the college to obtain accreditation 2017.
  - A certificate of thanks and appreciation from the Faculty of Education, Ain Shams University, in appreciation of its efforts in the activities of the scientific festival of university faculties under the slogan "Science and technology advance nations 2017.
  - A certificate of thanks and appreciation from the Faculty of Education, Ain Shams University, in appreciation of its efforts in the activities of the annual scientific conference of the college in 2017.
-



- A certificate of thanks and appreciation from the General Administration of the Exploratory Centers in appreciation of its efforts in judging the Ibn Al-Haytham competition at the level of the governorates of the Republic in 2018.
  - A certificate of thanks and appreciation from the Faculty of Education, Ain Shams University, in appreciation of its efforts and participation in the activities of the annual internal college conference entitled “Academic and Professional Skills and Teacher Preparation”, which was held in September 2018.
  - A certificate of thanks and appreciation from the Student Union of the Faculty of Education, Ain Shams University, in appreciation of its efforts and active participation in supporting student activities and developing students' skills through courses and workshops conducted by 2018
  - A certificate of thanks and appreciation for its supervision of the scientific committee of the college, which won first place at the level of public and private universities and higher institutes in the competition of the Environmental Culture Committee 2018
  - A certificate of thanks and appreciation from the environment sector at Ain Shams University in appreciation of its efforts and effective participation in the environmental affairs sector and community service in the field of applied research on the fulfillment day 2018.
  - A certificate of thanks and appreciation from the Graduate Studies and Research Sector at Ain Shams University in appreciation of its efforts and effective participation in the graduate studies and research sector in the field of international publishing 2019.
  - A certificate of thanks and appreciation from Ain Shams University in appreciation of its efforts to participate in organizing the eighth scientific conference at Ain Shams University 2019.
  - A certificate of thanks and appreciation from Ain Shams University in recognition of its effective leadership of student activities and the organization of the annual conference of the department 2019.
  - A certificate of thanks and appreciation from the Department of Chemistry, Faculty of Education, Ain Shams University, in appreciation of its efforts in serving the department and the faculty during the academic year 2019-2020.
  - A certificate of thanks and appreciation from the environment sector at Ain Shams University in appreciation of its efforts and effective participation in the environmental affairs sector and community service in the field of applied research 2020.
-



- A certificate of thanks and appreciation from the Graduate Studies and Research Sector at Ain Shams University in appreciation of its efforts and effective participation in the graduate studies and research sector in the field of international publishing 2021.

## Supervising scientific theses

I participated in supervising the following 4 MA and 3 PhD theses:

1. The master's thesis of the student / Ahmed Raafat Abdel Hamid. entitled: "Physicochemical studies on the degradation of some pollutants in aqueous medium."
2. The master's thesis of the student / Suzan Shehata Abdullah. entitled: Synthesis, characterization, and evaluation of the antimicrobial activity of modified mesoporous silica nanoparticles against multidrug resistant pathogens
3. The master's thesis of the student / Maryam Zakaria Muhammad. entitled: "Synthesis, Characterization and Evaluation of Coated Silver Nanoparticles against Multidrug Resistant Pathogens"
4. The master's thesis of the student / Alia Atef Aziz Abdel Ghani. entitled: "Synthesis, characterization and evaluation of the antimicrobial activity of modified mesoporous silica nanoparticles against multidrug resistant pathogens"
5. The PHD thesis of the student / Khaled Mohamed Mohamed Abdel Azim. entitled: "Electrochemical and computational studies for corrosion and corrosion inhibition of iron in acid media by using some organic corrosion inhibitors." Promoted.
6. The PhD thesis of the student / Radwa Muhammad Wagdy. entitled "Advanced functionally graded composites for environmental uses."
7. The PhD thesis of the student / Ayman Salah. entitled " Synthesis and Characterization of Modified Nano-structured Materials for various Environmental Applications."

## Preparation, Measurements, and characterization

I am an expert in the preparation, measurements, and characterization of semiconductor materials and devices as follows:



1. Structure properties including (XRD, TGA, DTA and EDX, SEM, and AFM analysis) for amorphous and polycrystalline semiconductors.
2. X-Ray indexing software (Crossfire, Checkcell, and Powder-X).
7. Optical properties (Transmission, Reflection, bandgap, energy dispersive parameters, complex dielectric constant, relaxation time, dissipation factor, and optical conductivity).
11. Effect of illumination and photoconduction mechanisms of organic and inorganic semiconductor devices.
12. Dye-sensitized solar cells (DSSCs)
13. Photovoltaic properties of II-VI using MBE technology.
14. Preparation of nanomaterials using sol-gel spin coating technique (thin-film production).
15. Preparation of nanomaterials using co-precipitation method (powder production).
16. Preparation of nanomaterials using the hydrothermal method (powder production).
17. Preparation of nanomaterials using Microwave technology method (powder production).
18. Preparation of nanomaterials using the hydrothermal method (Thin-film production).
19. Carbon nitride materials and its doping.
20. Graphene, reduced Graphene oxide, and Graphene oxide and its applications in nanocomposites, solar cells, and batteries.
21. Bio-Ceramics (Pure and doped Hydroxyapatite) for bone cement applications (current trend).
22. Calculations of nonlinear optics.
23. UV sensors are based on nanomaterials and polymers composites.
26. Microwave technology for synthesis of nanomaterials.
27. Graphene oxide: synthesis and applications (polymer and composites).
28. Wastewater treatments,
29. Photocatalytic materials using Microbial activity (current trend).
30. Carbon quantum dots (current trend).
31. Graphene-based nanocomposites: Synthesis and applications (current trend).
32. Optical limiting technique/materials for flexible laser filters (current trend).
33. Nonlinear media/materials/setup (current trend).

## Building new laboratories

---



---





1. Nano-Science laboratory, and now titled as (Nanoscience Lab for Environmental and Bio-medical Applications (NLEBA), Physics Department – Faculty of Education – Ain Shams University – Roxy – Cairo –Egypt.
2. Physical chemistry Laboratory, Chemistry Department – Faculty of Education – Ain Shams University – Roxy – Cairo –Egypt.
3. Photochemistry Laboratory, Chemistry Department – Faculty of Education – Ain Shams University – Roxy – Cairo –Egypt.
4. Spectrophotometry chemistry Laboratory, Chemistry Department – Faculty of Education – Ain Shams University – Roxy – Cairo –Egypt.

## **Areas of Interest**

- 
1. Organic/inorganic semiconductors
  2. Nano-materials, nano-composites, metal oxides, nano-metal halides, radiation detector materials, nano-bio ceramics.
  3. Graphene oxide: synthesis and characterization, and their applications.
  4. Graphene: synthesis and characterization, and their applications.
  5. Thin film technology: low-cost deposition systems.
  6. Polymer optical materials, polymer nanocomposites, CUT-OFF laser filters.
  7. Carbon quantum dots (current trend).
  8. Photocatalytic materials using Microbial activity (current trend).
  9. Bio-Ceramics (Pure and doped Hydroxyapatite) for bone cement applications (current trend).
  10. Low-cost method for large production of graphene nanosheets (current trend).
  11. Nonlinear media (current trend).
  12. MOF materials
  13. Removal of organic pollutants
  14. Silver nanoparticles and silver nanocomposites (current trend).
  15. Water and wastewater treatment
  16. Heavy metal removal
  17. Photocatalytic removal of dyes and pesticides
-





## Courses and workshops

---

- Workshop entitled "Application of Nanochemistry in Energy, water and Environment Development" Faculty of Science, Ain Shams University 4-14-2013 Attended (Intern)
  - "English Conversational" course, Prince Edward University, Canada, for 5 weeks, 2014 attended (trainee)
  - A course on "Safety and Security Rules in Chemistry Laboratories" at Prince Edward University in Canada 2014 attended (trainee)
  - Workshop entitled "Myers Briggs Type Indicator (MBTI) in Teaching" from Prince Edward University, Canada 2014 Attending (Trainee)
  - Advanced Training of Trainers (20 contact Hours) The American University 26-29/7/2015 Attended (Trainee)
  - A workshop entitled "Studying the application of nanosciences in desalination and water treatment and evaluating the safety parameters of used nanomaterials" Academy of Scientific Research and Technology 5/6/2016 Attended (trainee)
  - "Management and Operation of Moodle System" Quality Assurance Unit at Ain Shams University 10/18-19/2016 Attended (Trainee)
  - "Teaching and Learning Methods" course, Quality Assurance Center, Ain Shams University 7-8/3/2017 Attended (trainee)
  - A workshop entitled "Introduction to Patents", Faculty of Education, Ain Shams University 9/9/2018, attended (Trainee)
  - Workshop entitled "Using Technology in Teaching" Clarivate Analytics at Ain Shams University 9/26/2018 Attended (Trainee)
  - Accomplishment joint research with the university of Prince Edward Island
  - English conversation sessions from the EAP Unit at the university of Prince Edward Island
  - TOEFL with score, 600
  - Lab Safety Training from the university of Prince Edward Island
  - Advanced Training of Trainers from The American University in Cairo
-



- The first workshop on "Nanometric materials for environmental and biomedical applications" Nano-science lab - Faculty of Education - Ain Shams University December 30, 2018 Organizing and attendance.
- Workshop entitled "STEM Teacher Education and School Strengthening Activity "STESSA Project". Faculty of Education, Ain Shams University, 13-14/1/2019.
- Workshop entitled Promoting your research capabilities: The modern knowledge cycle, Elsevier Researcher Academy on Campus at Ain Shams University, 11/9/2019 Attendees (Trainee)
- A workshop entitled "Egyptian Knowledge Bank" at the Faculty of Commerce - Ain Shams University 12-13/11/2019, attended (trainee).
- A workshop entitled "Using the electronic platform to teach undergraduate courses", which was held at the Faculty of Education - Ain Shams University on November 30, 2019 (trainee)
- A course entitled "Advanced skills of PowerPoint presentation Faculty Development Center, Ain Shams University, 16-17/6/2020 Attended (Trainee)
- The effect of nanotechnology on the efficiency of solar cells" (online)" Via Zoom platform The Saudi Nanotechnology Initiative, Kingdom of Saudi Arabia 18/6/2020 Attendance (Trainee)
- "Wonders of nanotechnology (online)" course, via the Zoom platform, the Saudi Nanotechnology Initiative, Saudi Arabia 6/20/2020, attended (trainee)
- Course "E-Learning Using Moodle" Faculty Development Center, Ain Shams University 23-24/6/2020 Attendance (Trainee)
- Course "Strategic Planning" Faculty Development Center, Ain Shams University 23-24/6/2020 Attendance (Trainee)
- "Negotiation and Persuasion Skills" course, Faculty Development Center, Ain Shams University, 25-26/6/2020 Attendance (trainee)
- "Egyptian Knowledge Bank" course, Faculty Development Center, Ain Shams University, 27-28/6/2020 Attendance (trainee)
- "Search and Research" course, Faculty Development Center, Ain Shams University 2-3/7/2020 Attendance (trainee)



- A workshop entitled “(online) Nanomaterials for solid phase extraction” via the Zoom platform, King Saud University, Kingdom of Saudi Arabia 7/7/2020 Attendance (trainee)
  - "Research from Idea to Marketing" course via Zoom, King Khalid University, Saudi Arabia 9/7/2020 Attended (Trainee)
  - "Preparation for the Final Discussion" course via Zoom, the virtual summer research camp of Tabuk University, Saudi Arabia 7/12/2020 until 12/8/2020 Attendance (Trainee)
  - The course "The difference between the quantitative and qualitative research approach" via Zoom platform, the virtual summer research camp of Tabuk University, Saudi Arabia 7/12/2020 until 12/8/2020 Attendance
  - “Publishing in Prestigious Scientific Journals” course via Zoom, the virtual summer research camp of Tabuk University, Saudi Arabia 7/12/2020 until 12/8/2020 Attendance
  - “How to design a questionnaire as part of your quantitative research” course via Zoom, the virtual summer research camp of Tabuk University, Saudi Arabia 7/12/2020 until 12/8/2020 Attendance (intern)
  - "How to design a scientific poster" course via Zoom platform, the virtual summer research camp of Tabuk University, Saudi Arabia 7/12/2020 until 12/8/2020 Attendance (intern)
  - “How to Write Previous Literature” course via Zoom, the virtual summer research camp of Tabuk University, Saudi Arabia 7/12/2020 to 8/12/2020 Attendance (Trainee)
  - "How to write a research proposal" course via Zoom, the virtual summer research camp of Tabuk University, Saudi Arabia 7/12/2020 to 12/8/2020 Attendance (Trainee)
  - “Type Research Methods” course via Zoom platform, the virtual summer research camp of Tabuk University, Saudi Arabia 7/12/2020 until 12/8/2020 Attendance (Trainee)
  - Course "Skills of Conducting and Analyzing Personal Interview as Qualitative Data for Research Purposes" via Zoom platform, the virtual summer research camp of Tabuk University, Saudi Arabia 12/7/2020 to 12/8/2020 Attended (Trainee)
  - Workshop entitled (online) Harvesting water from Desert Air via Zoom platform King Saud University, Saudi Arabia 7/21/2020 Attended (Trainee)
  - Workshop entitled (online) Safety in Chemistry Laboratories via the Zoom platform of the Saudi Chemical Society, Kingdom of Saudi Arabia 7/23/2020 Attended (Trainee)
-



- INTERNATIONAL WEBINAR ATTENDANCE (Trainee) “Trends in nanomaterial design and applications for optoelectronic devices” via Zoom Pushpam College (Autonomous), Poondi, Thanjavur, India 7/27/2020
- Training course (online) Designing education and assessment forms using Microsoft forms available in the university email Quality Assurance Unit - Faculty of Education, Ain Shams University 08/20/2020 Trainer
- Training course (online) "Design and characterization of various hybrid nanocomposites for environmental and photovoltaic applications" via the Zoom platform of the Saudi Society for Physical Sciences, Saudi Arabia 01/24/2021 attended (trainee)

## Activities

- 
- Visit wastewater treatment plant in Prince Edward Island, Canada
  - Workshop of Application of Nano chemistry in energy, water and environment development, Faculty of education, ASU
  - Founder of a group of chemistry group of scientific activity of undergraduate students.
  - Win second place with group of chemistry in the Scientific Conference of Ain Shams University Competition.
  - Quality coordinator for the Department of Chemistry.
  - Give workshops for lab safety training for the labs' technicians in Faculty of Education, ASU.
  - The preparation of "**memory book of chemistry department**", Faculty of Education, Ain Shams University.

## International Conferences

- 
- 7th International Scientific Conference, Environment, Development, and Nanotechnology, Faculty of Science, Al-Azhar University, 22–24 March 2012, Cairo, Egypt. "Degradation of Levafix brilliant red dye using different prepared and characterized ZnO and modified ZnO/SiO<sub>2</sub>", oral presentation.
  - 9th International Conference for Basic Sciences, Energy, Environment and sustainable Development, Faculty of Science, Al-Azhar University, 27–29 March 2017, Cairo, Egypt
-



- a. “Synthesis, Characterization of nano ZnO supported IRA120 and its application in LBR textile dye Removal”, oral presentation.
- b. "Photocatalytic degradation RB5 textile dye using hydrogen peroxide", oral presentation.
- 1st International Conference for on Molecular Modeling and spectroscopy, National Research Centre, 19–22 February 2019, Giza, Egypt “Visible photocatalytic nanomaterials for Wastewater Treatments”, oral presentation.
  - The eighth annual international conference at Ain Shams University under the title: (Creativity - Innovation - Industry), during the period from 1 to 3 April 2019. "Nanotechnology Between Creativity and Innovation", oral presentation
  - 10th International Conference for Laser Applications, Cairo University, 23–28 November 2019, Cairo, Egypt. “Photodegradation of phenolic derivative via La doped ZnO coated Amberlite IR-120 (H)”. poster

## External reviewer in international journals

---

- Nature Scientific Reports
  - South African Journal of Chemical Engineering
  - Infrared Physics and Technology
  - Applied Biochemistry and Biotechnology
  - International Journal of Environment
  - 12th International Conference on nano- technology for green and sustainable development (NTC 2020).
-



## List of publications (30)

1. N. Sabry, [Mai S.A. Hussien](#), I.S. Yahia, Eco-friendly synthesis of g-carbon nitride coated graphene nanocomposites for superior visible photodegradation of hydroquinone: Physicochemical mechanisms and photo-Fenton effect. Journal of Photochemistry & Photobiology, A: Chemistry, **Accepted**.
2. M.I. Mohammed; R.M. Khafagy; [Mai S.A. Hussien](#); G.B. Sakr; Medhat A. Ibrahim; I.S. Yahia; H.Y. Zahran, Enhancing the structural, optical, electrical, properties and photocatalytic applications of ZnO/PMMA nanocomposite membranes: Towards multifunctional membranes. Journal of Materials Science: Materials in Electronics. **Accepted**.
3. Atef S. Darwish, [Mai S.A. Hussien](#), Zeinab H. Fahmy, Fatma E.A. Bayaomy, Lattice strain-, size-, and magnetic- dependent anti-Trichinella spiralis effect of Er<sup>3+</sup> lightly doped zinc ferrite nanoparticles: In-vivo and in-vitro evaluations, Journal of Magnetism and Magnetic Materials 545 (2022) 168744
4. Thekayat AlAbdulaal, Manal AlShadidi, [Mai Hussien](#), Vanga Ganesh, Abdel-Fatah Bouzidi, Saqib Rafique, Hamed Algarni, Heba Zahran, Mohamed Abdel-wahab, Ibrahim Yahia. Multifunctional and smart Er<sub>2</sub>O<sub>3</sub>-ZnO nanocomposites for electronic ceramic varistors and visible light degradation of wastewater treatment, Environ Sci Pollut Res, 2021.
5. K. M. Abdel-Azim, [M. Saleh](#), N. S. Abdelshafi, K. F. Khaled, Studies on the Effect of Some Pyrimidine Derivatives on the Corrosion of Iron in 1M Hydrochloric Acid, Egypt. J. Chem. Vol. 64, No. 7 pp. 3475 - 3488 (2021).
6. T.H. AlAbdulaal, M. AlShadidi, [Mai S.A. Hussien](#), G. Vanga, A. Bouzidi, Saqib Rafique, H. Algarni, H.Y. Zahran, M.Sh. Abdel-wahab, I.S. Yahia, Enhancing the electrical, optical, and structure morphology using Pr<sub>2</sub>O<sub>3</sub>-ZnO nanocomposites: Towards electronic varistors and environmental photocatalytic activity, Journal of Photochemistry & Photobiology, A: Chemistry 418 (2021) 113399.
7. A. Abdel-Galil, [Mai S.A. Hussien](#), I.S. Yahia, Synthesis and optical analysis of nanostructured F-doped ZnO thin films by spray pyrolysis: Transparent electrode for photocatalytic applications, Optical Materials 114 (2021) 110894.
8. T. E. Ali, M. A. Assiri, I. S. Yahia, H. Y. Zahran, M. H. Meselhy, and [M. S. Hussien](#), Regioselective Synthesis of Novel Functionalized Pyrano[2',3':4,5]pyrimido[1,6-b][1,2,4,5]triazaphosphepines, Russian Journal of Organic Chemistry, 57 (1) (2021) 79–84





9. Tarik E. Alia, Hafez M. El-Shaaer, Somaia M. Abdel-Kariem, **Mai S. A. Hussien**, Ibrahim S. Yahia and Heba Y. Zahran, The Synthesis and Chemistry of 2-Imino-2H-Chromene-3-Carbo(Thio) Amides, Mini-Reviews in Organic Chemistry 18 (2021) 1-22.
  10. **Mai S.A. Hussien**, I.S. Yahia, Hybrid multifunctional TiO<sub>2</sub>@g-C<sub>3</sub>N<sub>4</sub> for superior Visible-photodegradation of organic dye and pharmaceutical compounds. Journal of Environmental Science and Pollution Research, (2021). Accepted
  11. **Mai S.A. Hussien**, Facile synthesis of nanostructured Mn-doped Ag<sub>3</sub>PO<sub>4</sub> for visible photodegradation of emerging pharmaceutical contaminants: Streptomycin photodegradation. Journal of Inorganic and Organometallic Polymers and Materials, (2021).
  12. Tarik E. Ali, Mohammed A. Assiri, H. Y. Zahran, I. S. Yahia, **Mai S. A. Hussien**, Facile synthesis of some novel 1,3,4,2-oxa(thia)diazaphospholo[5,4-b]quinazolinones and 1,2,4,3-triazaphospholo[5,1-b]quinazolinones. Synthetic Communications, 51:2 (2021) 302-307.
  13. Obaid Albulym, **Mai S.A. Hussien**, Mona Kilany, H.Y. Zahran, Refaat A. Eid, I.S. Yahia, M.M. Abutalib, 5-minute synthesis of gelatinous silver nanoparticles using microwave radiation: Plasmonic optical spectroscopy and antimicrobial activity. Optik - International Journal for Light and Electron Optics 228 (2021) 166139.
  14. Bouzidia, **Mai S.A. Hussien**, Hisham S.M. Abd-Rabbohd, Ayman A.H. Abdelrhimd, I.S. Yahiac, Nasser S. Awwad, Physicochemical characterization of La-doped g-C<sub>3</sub>N<sub>4</sub> for degradation of phenol and organic dye. Desalination and Water Treatment, 204 (2020) 136–143.
  15. Nasser S. Awwad, A.Y. Alshahrani, Ehab. El Sayed Massoudd, A. Bouzidif, **Mai S.A. Hussein**, I.S. Yahia, Mechanism for microwave degradation of Methylene Blue and Arsenazo(III) dyes using graphene oxide synthesized from date pits, Desalination and Water Treatment, 187 (2020) 321–332
  16. **Mai S.A.Hussien**, M. I. Mohammed, I.S.Yahia, Flexible photocatalytic membrane based on CdS/PMMA polymeric nanocomposite films: Multifunctional materials, Environmental Science and Pollution Research, (2021).
  17. A. Abdel-Galil, **Mai S.A. Hussien**, I.S. Yahia, Low cost preparation technique for conductive and transparent Sb doped SnO<sub>2</sub> nanocrystalline thin films for solar cell applications, Superlattices and Microstructures, (2020).
  18. A. A. M. Farag, **Mai S. A. Hussien**, N. Roushdy, Photoelectrical and Photodegradation Characteristics Using Zirconyl Oxychloride as an Efficient Catalyst in Various Forms: A Comparison Study, ChemistrySelect, 5 (2020) 7808.
-





19. **Mai S.A. Hussien**, S.S. Shenouda, B. Parditka, A. Csík, Z. Erdélyi, Enhancement of Urbach's energy and non-lattice oxygen content of TiO<sub>1.7</sub> ultra-thin films for more photocatalytic activity. *Ceramics International*, (2020).
  20. S.S. Shenouda, **Mai S.A. Hussien**, B. Parditka, A. Csík, V. Takats, Z. Erdélyi, Novel amorphous Al-rich Al<sub>2</sub>O<sub>3</sub> ultra-thin films as active photocatalysts for water treatment from some textile dyes. *Ceramics International*, (2020).
  21. **Mai S.A. Hussien**, M. I. Mohammed, I. S. Yahia, Multifunctional Applications of Graphene-Doped PMMA Nanocomposite Membranes for Environmental Photocatalytic. *Journal of Inorganic and Organometallic Polymers and Materials*, 2019.
  22. Obaid Albulym, Omer Kaygili, **Mai S.A. Hussien**, H.Y. Zahran, Mona Kilany, I.S. Yahia, Niyazi Bulut, R. Darwish, Attalla Farag El-kott. Antimicrobial activity of Ga-doped hydroxyapatite nanostructures: Synthesis, and morphological, spectroscopic, and dielectric properties. *Journal of Biomaterials and Tissue Engineering (JBT)*, 2019
  23. HY Zahran, Mona Kilany, I. S. Yahia, Obaid Albulym, **Mai S.A. Hussien** and M. M. Abutalib, Facile microwave synthesis of silver nanoplates: optical plasmonic and antimicrobial activity". *J. Mater. Res. Express* 6 (2019) 095073
  24. Essam H. Ibrahim, Obaid Albulym, Omer Kaygili, Mona Kilany, Mohd. Shkir, **Mai S.A. Hussien**, Niyazi Bulut, I.S. Yahia. Green synthesis, structural, in vitro and vivo bioactivity properties of ZnO nanoparticles for biomedical applications. *Preprints* 2019
  25. **Mai S.A. Hussien**, I.S. Yahia. Fabrication progress of selective and durable Ni<sup>2+</sup>-doped Ag<sub>3</sub>PO<sub>4</sub> for visible-light degradation of various textile dyes. *Journal of Photochemistry & Photobiology A: Chemistry* 368 (2019) 210–218.
  26. Tarik E. Ali, Mohammed A. Assiri, Noha M. Hassanin, I. S. Yahia, **Mai S.A. Hussien**. A Convenient Synthetic Route of Diethyl (4-Oxo-chromeno[2,3-d]pyrimidin-2(5)-yl) phosphonates *J. Heterocyclic Chem.*, 56 (2019) 1684– 1686.
  27. **Mai S.A. Hussien**, I.S. Yahia, Visible photocatalytic performance of nanostructured molybdenum-doped Ag<sub>3</sub>PO<sub>4</sub>: Doping approach. *Journal of Photochemistry and Photobiology A: Chemistry* 356 (2018) 587–594.
  28. Omima M. I. Adly and **Mai S.A. Hussien**, Photo-Removal of RB5 from Textile Industrial Waste by Zn (II) Complex Nano-Powder, *J. Pharm. Appl. Chem.* 4, No. 1, (2018) 33-40.
-



29. **Mai S.A. Hussien**, Mostafa M. Emara, Sameh M. K. Aboul Fotouh, Nabil H. Amin, Medhat M. EL-Moselhy, Homogeneous Photocatalytic degradation of Reactive Black 5 textile dye using H<sub>2</sub>O<sub>2</sub> under wide experimental conditions, J. Bio. and Chem. Research. 2016.
30. Mostafa M. Emara, Nabil H. Amin, Sameh M. K. Aboul Fotouh, Medhat M. EL-Moselhy and **Mai S.A. Hussien**, Kinetic Studies of Homogeneous Photocatalytic Degradation of Phenol using H<sub>2</sub>O<sub>2</sub> under Different Experimental Conditions, Int. j. Environ. 4(4) (2015) 322-335.



## Projects

- 
- 1- Green synthesis approach of nanostructures rare- earth doped metal oxides for environmental wastewater treatments: Removal of toxic transparent pollutants, PI, funded by STDF, project ID: 37226, 2021, Running.
  - 2- Treatment of wastewater contains some heavy metals cations in populated areas with those pollutants, PI, Funded by the projects of the strategic plan for postgraduate studies and research, Ain Shams University, 2017-2019.
  - 3- Functionality of Smart Carbon and Smart Advanced Nanomaterials for Environmental and Sensing Applications, Co-PI, Deanship of Scientific Research, at King Khalid University under grant number: R.G.P.2/9/38, 2017
  - 4- Design and fabrication of organic and/or inorganic thin films using cost-effective technology, Co-PI, The Research Center for Advanced Materials Science (RCAMS)" at King Khalid University under grant number: RCAMS/KKU/008-18, 2018.
  - 5- Study the optical and electrical properties of new organic Semiconductors for Electro-optic Applications, Co-PI, The Research Center for Advanced Materials Science (RCAMS)" at King Khalid University under grant number: RCAMS/KKU/003-18. 2018.
  - 6- Recycling of RB5-contaminated water used in the textile industry by photocatalysis/nanomaterials technology, PI, 2017.
  - 7- Treatment of wastewater using novel nanomaterials in presence of visible light, PI, 2018.
-



## Skills

---

- Sound knowledge on the preparation of Metal oxides, MOF, g-C<sub>3</sub>N<sub>4</sub> based materials for toxic pollutants adsorption as well degradation.
- Experience in utilizing surface modified polymers to enhance the adsorption and degradation of organic and inorganic pollutants
- Strong knowledge in photocatalysis using various nanomaterials for water treatment
- Having experience with graphene-based composites towards toxic ions retention from water
- Hands on experience in handling instruments like XPS, XRD, FTIR, UV-Vis, TEM, SEM with EDAX, BET, TGA, IC etc.,
  - In the environmental fields: the production of new nanometric materials and their finish in industrial wastewater treatment and the disposal of some industrial dyes and organic pollutants such as phenols and their derivatives and antibiotics in the residues of pharmaceutical factories.
  - In the field of catalysis: the production of new nanometric materials in the preparation of compounds with different properties for an idea as catalysts for applied industrial purposes.
  - In various applications: such as for an idea as an antimicrobial.

Thus, as shown in the published scientific production, most of the research is applied and seeks to solve real problems that Egyptian society suffers from, such as the problem of pollution and the production of materials that act as antimicrobials, in addition to the attempts of the research team to cooperate with industrial bodies to provide us, for example, with wastewater samples, which is a step in the way of linking the university Scientific research deals with the problems of society and factories, and this is the real goal of scientific research to ultimately benefit society.

---



## Contact

---

**Address :** 84 st, Zahraa – Nasr City-Cairo, Egypt.

**Email :** [maisalehamar@gmail.com](mailto:maisalehamar@gmail.com); [maisaleh@asu.edu.asu.eg](mailto:maisaleh@asu.edu.asu.eg)

**Mobile :** 01005176776

**Fax :** +20222581243

## Personal Details

---

**Nationality :** Egyptian

**Gender :** Female

**Marital Status :** Married

**Date of Birth :** 01-09-1986

**Linguistic Skills :** Arabic: Mother Tongue English: Very good

## References

---

**1. Prof. Dr. Gamal Bakr Saker**

NLEBA, Department of Physics  
Faculty of Education, Ain Shams University,  
Roxy, Cairo, Egypt  
Mobile: + 201000211161  
E-mail: [gamalsaker@yahoo.com](mailto:gamalsaker@yahoo.com)

**2. Prof. Dr. Ibrahim Sayed Hussein**

NLEBA, Department of Physics, Faculty of Education,  
Ain Shams University, Roxy, Cairo, Egypt  
Department of Physics (AFMOL), Department of Physics,  
Faculty of Science, King Khalid University, P.O. Box  
9004, Abha, Saudi Arabia  
Mobile: +966–548208818, +966–593604010  
E.mail: [ihussein@kku.edu.sa](mailto:ihussein@kku.edu.sa), [dr\\_isyahia@yahoo.com](mailto:dr_isyahia@yahoo.com)

**3. Prof. Dr. Mostafa Mahmoud Emara**

SCDREH, Department of chemistry  
Faculty of Science, Al-Azhar university,  
Nasr city, Cairo, Egypt  
Mobile: + 201000236539  
E-mail: [scdreh@yahoo.com](mailto:scdreh@yahoo.com)

**4. Prof. Dr. Rabie Saad farag Elhalag**

SCDREH, Department of chemistry  
Faculty of Science, Al-Azhar university, Nasr city, Cairo,  
Egypt  
Mobile: +201001960575