

# DINA EMAM BASHER

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## CAREER SUMMARY:

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I am a highly skilled researcher and educator with a **Ph.D. in Chemistry**, a Master's degree in Chemistry, and a Diploma in Analytical Biochemistry, with over 13 years of experience in undergraduate teaching. **My expertise lies in the production of high-purity hydrogen gas from nanoporous silicon, for which I hold a registered patent.** I also have strong experience in polymer synthesis and nanofiber fabrication using electrospinning and solution blow spinning techniques. I have extensive experience in chemical analysis, served as a laboratory administration director, and contributed significantly to chemical diagnostic services during the COVID-19 pandemic.

## RESEARCH INTEREST:

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- *Green and Sustainable Chemistry*
- *Hydrogen Production and Renewable Energy*
- *Nanoporous Silicon Applications*
- *Polymer Synthesis and Nanofibers*
- *Nanotechnology in Energy and Environmental Fields*
- *Non-Organic (Physical, Inorganic and Analytical) Chemistry*
- *Medical Chemical Analysis and Biochemistry*

## ACADEMIC QUALIFICATIONS:

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- **Ph.D. in Non-Organic Chemistry, Alexandria University, Alexandria.** (Aug 2021)
  - *Dissertation title: "Application of Nano Porous Silicon for Hydrogen production".*
  - *Research Focus: Hydrogen production, preparation of Nanoporous silicon powders and explanation of these data using (GC mass chromatography, FTIR, XRD, TEM, Raman spectroscopy, SEM, UV and PL spectroscopy)*
- **M.Sc. in Non-organic Chemistry, Alexandria University, Alexandria.** (Mar 2014)
  - *Thesis tile: Physico-chemical studies on some metal complexes of organic ligand containing cyclic keto group.*
  - *Research Focus: Preparations of Inorganic Metal Complexes, analysis and explanation data of (HNMR, IR, C13, TG, DTA, UV, ESR, X-ray DSC, Chromatographic technique) and their biological effect.*
  - *Research Focus: Computational studies on pyridine metal complexes using Density Function Theory (DFT)*
- **Diploma in Analytical Biochemistry, Shibin El-Kom University, Menoufia.** (May 2012)
  - *Grade: Excellent*
- **B.Sc. in Chemistry & Physics, Alexandria University, Alexandria.** (May 2008)
  - *Grade: Very good with honor*

## **PATENTS & PROJECTS:**

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- **Patent:** Production of high purity hydrogen gas from the synthesis of Nanoporous silicon, Number (2020/999). (July 2020)
  - Egyptian Patent office (EGPO), Academy of Scientific Research & Technology, Egypt.
- **Researcher:** Center of Smart Materials, Nanotechnology, and Photonics (CSMNP) at SmartCI Research Center, Faculty of Engineering, Alexandria University. (Oct 2022-Oct 2023)
  - Collaborated with research members in a project funded by STDF to produce hydrogen from water electrolysis and nanofiber fabrication using Polymer synthesis.
  - Conducted research on hydrogen production and nanofiber fabrication techniques such as Electrospinning and solution blow spinning.

## **ACADEMIC POSITIONS:**

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- **Faculty of Technological Science, Merit University in Egypt (MUE)** (Sep 2025 till now)  
**Chemistry lecturer**  
My responsibilities include teaching undergraduate chemistry courses, designing and developing chemistry curricula, preparing and supervising laboratory sessions and tutorials, and uploading formative assessments to evaluate students' performance and progress.  
I am also involved in course planning and coordination to ensure that the chemistry program meets the university's academic standards and learning objectives
- **Faculty of Education, Alexandria University.** (Sep 2021-May 2022)  
**Chemistry Teaching Assistant (Part-Time)**  
Assisted in undergraduate Inorganic chemistry courses, providing support and guidance to a class size ranging from 25-35 students.
- **Pharos University in Alexandria (PUA), Faculty of Dentistry, Alexandria.**  
**Chemistry Teaching Assistant (Part-Time)** (Sep 2010-May 2021)  
Provided guidance and teaching support for Pre-Dental general chemistry and biochemistry courses to a class size ranging from 25-35 students.
- **Higher institute of engineering and technology, Borg El-Arab City, Alexandria.**  
**Physics & Chemistry Teaching Assistant (Part-Time)** (Oct 2019-Dec 2020)  
Assisted in teaching engineering chemistry and physics courses to a class size ranging from 10-15 students.
- **Faculty of Science, Alexandria university.** (Oct 2008-Oct 2012)  
**Chemistry Teaching Assistant (Part-Time)**  
Conducted classes on Pre-pharmacist and undergraduate Inorganic chemistry & general chemistry.

## Professional / Administrative Experience:

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- **Consultant of Medical Chemical Analysis, Ministry of Health and Population** (2015 – Aug 2025)
  - Performed required chemical analyses in Ministry of Health laboratories.
  - Supervised and trained laboratory staff.
  - Ensured quality assurance and regulatory compliance.
- **Director of Laboratory Administration at District level, Alexandria Health Directorate, Ministry of Health and Population** (2022 – 2024)
  - supervised all laboratories within the medical district.
  - Coordinated diagnostic services, quality assurance, and reporting systems.
  - Led administrative planning, budgeting, and staff management.
  - Represented the district laboratories in official meetings and audit
- **Responsible for Chemical Analysis, Quarantine (Isolation) Hospital during COVID-19 Pandemic** (July2020 – Aug 2020)
  - Permanently resided on-site to ensure uninterrupted chemical diagnostic services for COVID-19 patients.
  - Performed and supervised chemical analyses under high-pressure emergency conditions.
  - Collaborated closely with physicians and healthcare teams to support patient management with rapid and accurate results.

## PUBLICATIONS:

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1. **Dina E.Basher. et al**, "Metal (II) ion Complexes of 2-Hydroxy pyridine-N-oxide (HOPO): Synthesis, Characterization and Biological Studies" , The 24<sup>th</sup> Arab International Conference on Materials Science Materials Science & Investing in Scientific Research through Entrepreneurship" (Oct 2024)
2. Gharieb S. El-Sayyad , Dounia Elfadi , **Dina E.Basher** , "Eco-friendly Strategies for Biological Synthesis of Green Nanoparticles with Promising Applications" , BioNanoScience , 1494 (2024) DOI: [10.1007/s12668-024-01494-x](https://doi.org/10.1007/s12668-024-01494-x) (June 2024)
3. **Dina E.Basher. et al**, " The most abundant element in the universe , Hydrogen : Different Production Types" , Egypt as a Research Gateway to Attract Investment in the Arab World and Africa 2023 Conference , In the sponsorship of the Information Center and Decision Support of the Cabinet , Olympic Center inside the Tulip Hotel in New Maadi (25 Sep2023)
4. **Dina E.Basher. et al**, "Metal (II) ion Complexes of 2-hydroxy -3-methyl -2-cyclopenten-1-One: Synthesis, Characterization, Biological Studies, and DFT studies, "5<sup>th</sup> International Egyptian International Conference in chemistry, Chemistry and global challenges", The Egyptian chemical society & the British University in Egypt Marsa Allam , Egypt (25-28 Oct2022)
5. **Dina. E. Basher. et al**, "Synthesis, Crystal Structure and Comparative DFT Studies of a 1D Ni(II) Polymeric Complex of 2-Hydroxypyridine-N-oxide", Journal of Chemical Crystallographic ,46 (2016) p.269-279. DOI:[10.15744/2348-9812.1.301](https://doi.org/10.15744/2348-9812.1.301) (Jul2016)

6. Mohammed. A. Makhyoun, Rex. Palmer, Amina. Soayed, Heba. Refaat , **Dina E. Basher**, James Raftery, Carina Lobely, Anna Warren, Thomas Sorensen, and Mark Ladd Synthesis, “Ni (II) Complex of 2-Hydroxy-Pyridine-N-oxide-2-isothionate: Biological Studies and X-ray Crystal Structures Using (1) CuK Data and (2) Synchrotron Data”, journal of material Science & nanotechnology 1(3) (2014) p.1-11 .DOI:[10.1007/s10870-016-0656-9](https://doi.org/10.1007/s10870-016-0656-9) (Jun2014)
7. **Dina E. Basher. et al** , Ahmed H Hassanin , Nader Shehata , Nanofiber based nanocomposite for hydrogen production , Reactive and Functional Polymers Journal (In Progress 2025)
8. **Dina. E. Basher. et al**, Morsy A.youssef , A.B.Kashout “Hydrogen Production from Nano porous silicon”, International journal of Hydrogen Energy (In Progress 2025)

## REVIEWER AND EDITOR EXPERIENCE:

- Reviewer, “The Application of X-ray Technology in Medical Imaging : Advances , Challenges, and Future Perspectives” Manuscript, Journal of Sustainable Food, Water, Energy, and Environment” (Aug 2025)
- Reviewer, “Optimizing Dry-Cell Electrolysis for Enhanced Hydrogen Production Using Response Surface Methodology ” manuscript, Egyptian Journal of Chemistry (June 2025)
- Reviewer, “Disposal of expired empty containers and waste from pesticides” manuscript, Egyptian Journal of Chemistry (Aug 2023)
- Reviewer, “Antenatal gut microbiome profiles and effect on pregnancy outcome in HIV infected and HIV uninfected women in a resource-limited setting”, BMC Microbiology journal (March 2023)

## CONFERENCES & MEMBERSHIP:

- **Member**, United Arab Organization for Scientific Research (UAOSR) (Sep 2024 till now)
- **Audience**, The Role of women scientists and international cooperation in technology transfer and localization, Cairo University, Cairo, Egypt ( 20 Feb2025)
- **Audience** ,19<sup>th</sup> International conference of Arab Chemists Union (ICACU) entitled “Horizon of Applied Sciences for Quality of Life and Sustainability”, National Research Centre, Cairo, Egypt (13-15 Feb 2024)
- **Speaker**, 24<sup>th</sup> International Conference on Materials Science,” Materials Science & Investing in Scientific Research through Entrepreneurship”, Alex, Egypt (19-21 Oct 2024)
- **Speaker**, 19<sup>th</sup> International conference of Arab Chemists Union (ICACU) entitled “Horizon of Applied Sciences for Quality of Life and Sustainability”, National Research Centre, Cairo, Egypt (13-15 Feb 2024)
- **Speaker**, Egypt as a Research Gateway to Attract Investment in the Arab World and Africa 2023 Conference, In the sponsorship of the Information Center and Decision Support of the Cabinet, Olympic Center inside the Tulip Hotel in New Maadi, Cairo,Egypt. (25 Sep2023)
- **Audience**, 4<sup>th</sup> International Conference of Chemical, Energy and Environmental Petrochemical Engineering (ICCEEE), Egypt-Japan university of science and technology (E-just) , Borg-Arab City, Alexandria , Egypt (17-18 July2023)
- **Audience**, Bringing the Future of the healthcare, Sherton El-Montaza in Alexandria, Egypt (14 May2023)
- **Audience**, Technological Frontiers of Biomedical Research Conference, 57357 Cancer Hospital for children in Cairo, Egypt. (12 May2023)
- **Speaker**, 5<sup>th</sup> International Egyptian International Conference in chemistry, Chemistry and global challenges, The Egyptian chemical society & the British University in Egypt , Marsa Allam , Egypt

(25-28 Oct2022)

- **Audience** ,4<sup>th</sup> international Virtual Conference of Nanotechnological studies, Bioscience Research support foundation, Cairo (July2022)
- **Speaker**, 2<sup>nd</sup> Conference of graduated studies, Faculty of Science, Alexandria University, Alexandria. (May2022)
- **Audience**, 4<sup>th</sup> Annual Conference of Laboratories of MOHP Alexandria Directorate, Alexandria. (Dec2019)
- **Audience**, 2<sup>nd</sup> International Conference of Chemical and Petrochemical Engineering (ICCEEE), Egypt-Japan university of science and technology (E-just). (Jul2019)
- **Audience**, 1<sup>st</sup> Conference of graduated studies, institute of graduated studies and research (IGSR), Alexandria. (Jun2019)
- **Audience**, 2<sup>nd</sup> Annual Conference of Laboratories of MOHP Alexandria Directorate, Alexandria. (Sep2017)
- **Audience**, BioVision International Conference, Bibliotheca Alexandrina. (Apr2016)
- **Speaker**, Third Students Research Conference for Egyptian Faculties of Science (SRC-EFS), Faculty of science, Alexandria University. (May2014)
- **Audience**, BioVision International Conference, Bibliotheca Alexandrina. (Apr2014)

## **PROFESSIONAL DEVELOPMENT AND WORKSHOPS**

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- **Water-Energy-Food Nexus Workshop**, Faculty of Engineering, Alexandria University (10-11 Aug 2024)
- **The Arab woman and entrepreneurship**, Arab Women Organization, Online (4-6 June 2024)
- **Data Analysis using Excel and Power BI**, Well grow Organization, Cairo, Egypt (31 March-15 May 2024)
- **Energy Harvesting and storage materials**, Misr University for science and technology (MUST) , Cairo , Egypt (15 July 2023)
- **Preparation and characterization of nanoparticles for various application**, Faculty of Postgraduate Studies for Nanotechnology, Cairo University, Sheikh Zayed City, Egypt (21-24 June 2023)
- **Microbial fuel cell as a sustainable approach for water and wastewater treatment**, Institute of Graduate Studies and Research, Alexandria University, Alex, Egypt (28<sup>th</sup> Feb 2023)
- **Scientific Research Workshop**, Biosciences Research Support Foundation, Online. (5 July-10 Aug 2022)
- **International Virtual Workshop on Scientific Research Writing and Publication**, Biosciences Research Support Foundation , Cairo , Egypt. (Apr 2022)
- **Hydrogen Production training, Arab-City for Scientific Research**, Cairo, Egypt (Sep 2021)
- **Total Quality Management training, Diplomatic Training & Consulting**, Cairo, Egypt. (Apr 2020)
- **Infection Control training, Diplomatic Training & Consulting**, Cairo, Egypt. (Apr 2020)
- **Workshop in the art of chromatography and analytical capabilities: Background and Techniques**, Faculty of Agriculture, Alexandria. (Mar 2019)
- **Workshop on Sustainability in scientific Research**, Egypt-Japan university of science and technology. (Feb 2019)

- **Workshop of Researchers Guideline Training Program**, Bibliotheca Alexandrina (part 2).  
(Mar 2013)
- **Training on How to write your plan, Balanced life, Creative and thinking, Equations Success, Psychological Pressure Control, Strategic Planning for the institutions**, Al-Azhar Conference Hall, Cairo, Egypt.  
(Nov 2012)
- **Workshop of Researchers Guideline Training Program**, Bibliotheca Alexandrina (part 1).  
(Oct 2012)

## **VOLUNTEERING WORK**

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- **Chair of the Sustainability and Green Transformation Committee of the Tahya Misr Youth Union**, Alexandria Government  
(Jan 2024 till now)
- **Volunteer at Haya Karima Foundation** in Ajami district, Alexandria Governorate  
(Oct 2023 till now)

## **SKILLS:**

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### **Language skills:**

- **Arabic:** Mother Tongue.
- **English:** Very Good.
- **Deutsch:** Good.

### **Technical Skills:**

- Certificate of **Fundamental of Digital Transformation (FLDC)**, Alexandria University.
- Professional User of **Microsoft Office**.
- **Local Tofel**, Alexandria University.

### **Transferable skills:**

- Communication.
- Self-Motivation.
- Leadership
- Problem Solving.
- Flexibility.
- Negotiation