Moataz Gamal Mohamed Fayed

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Lecturer and Researcher
Mining & Metals Department
Tabbin Institute for Metallurgical Studies, (TIMS)
Tabbin, Helwan, Egypt
P.O. Box 109, Helwan 11421, Cairo, Egypt

Email: mezogmf@gmail.com
mezo_87_gmf @yahoo.com
moatazfayed@aucegypt.edu

Cell No. +2 01554496045

Personal Information

Date of Birth: 17th September, 1987

Marital Status: Married

Nationality: Egyptian

Educational Qualifications and Research Experience

2008 –2018 Lab specialist, Mining & Metals Department,
Tabbin Institute for Metallurgical Studies, (TIMS).
Tabbin, Helwan, Egypt.

2016-2018 Assistant Researcher, Energy Materials Laboratory (EML)
The American University in Cairo
New Cairo, 11835, Egypt

2018–2022 Assistant Lecturer, Mining & Metals Department
Tabbin Institute for Metallurgical Studies, (TIMS).
Tabbin, Helwan, Egypt.

2022 Lecturer, Mining & Metals Department
Tabbin Institute for Metallurgical Studies, (TIMS).
Tabbin, Helwan, Egypt.

Academic Record

Degree	*Subject taken*	*Board/College/University*	*Duration*	*%Marks*
B. Sc.	Chemistry	Chemistry Department, Faculty of Science, Menoufia University	2004-2008	82.91
M. Sc.	Inorganic chemistry	Chemistry Department, Faculty of Science, Menoufia University	2013-2015	Awarded
Ph.D.	Inorganic chemistry	Chemistry Department, Faculty of Science, Menoufia University	2017-2022	Awarded

- **Title of M. Sc. Thesis:** "Synthesis and characterization of nanostructure Mg-$MnFe_2O_4$ powders"
- **Title of Ph.D. Thesis:** "Synthesis of Nano-Architectures Materials for High Performance Energy Storage Systems"

Research and Technical Experiences

- Preparation of different carbon materials (carbon spheres, active carbon, graphene), metal (oxides, sulfides, selenides) nanostructures by using different preparation methods such as (Sol-gel, Sol-gel auto-combustion, Co-precipitation, Hydrothermal, Solvothermal and Microwave assistant chemical methods).
- Experienced in graphing and analyzing data from many characterization techniques such as X-ray diffraction, scanning electron microscope, transmission electron microscope, Raman spectroscopy, FT-IR spectroscopy, Thermogravimetric Analysis, (BET) surface area analysis.
- Experience in the preparation various electrode materials for Li-ion battery and supercapacitors.
- Experienced in assembling coin cells for lithium ion batteries and supercapacitor devices.
- Experienced in installing and analyzing electrochemical methods concerning with measuring Li ion batteries and supercapacitor electrochemical performance such as Electrochemical Impedance Spectroscopy (EIS), Cyclic Voltammetry (CV) and Galvanostatic charge-discharge (GCD).
- operator of atomic absorption spectrometer, optical emission for metal analysis spectrometer, carbon & sulfur determinator
- Highly motivated with strong ability to work independently as well as to collaborate within a research group.
- Veteran in writing and submitting manuscripts for journal publications.
- Very good oral and written proficiency in English.

Current Research Interest

- preparation of different carbon, silicon, and metal (oxides, sulfides, selenides) nanostructures, their application in Li-ion battery, Na-ion battery, Mg-ion battery, Al- ion battery, hydrogen production via water-splitting process, supercapacitors (EDLC, pseudocapacitor, battery-type capacitor).

Teaching skills

- Advanced Ceramics for master post-graduate, during the Master program at Mining & Metals Department, Tabbin Institute for Metallurgical Studies, (TIMS).

List of Projects

- **Member of (ASRT / NASB Belarus) project from 2018-2021:**
  "Designing Nano-Architectures Materials for High Performance Energy Storage Systems"
- **Member of Young Researchers Grant (STDF-YRG) project from 2020-2022:**
  "Fabrication of Nanostructured-Transition Metal Sulfides for High-Performance Supercapacitors"
- **Member of Reintegration Grant (STDF-RG) project from 2020-2022:**
  "Synthesis of Selenium, Metal Selenides and their Carbon-composites: Toward High-Performance Cathode Materials for Li-Se Battery as a Practical Candidate for Energy Storage"

List of Publications

- **Moataz G. Fayed**, Sayed Y. Attia, Yosry F. Barakat, E.E. El-Shereafy, M.M. Rashad, Saad G. Mohamed "Carbon and nitrogen co-doped MoS_2 nanoflakes as an electrode material for lithium-ion batteries and supercapacitors." *Sustainable Materials and Technologies* (2021) 29: e00306.
- **Moataz G. Fayed,** Saad. G. Mohamed, Yosry. F. Barakat, E. E. El-Shereafy, M. M. Rashad "Exploring the electrochemical properties of Cu-substituted $Li_2CoTi_3O_8$ as anode material for lithium-ion batteries" Bulletin of Materials Science (2022) 45 (3), 130.
- Mervat Ibrahim, **Moataz G. Fayed**, Saad G. Mohamed, Zhen Wen, Xuhui Sun, and Hani Nasser Abdel Hamid "High-Performance Lithium-Ion Battery and Supercapacitors Using Covalent Organic Frameworks (COFs)/Graphitic Carbon Nitride (g-C_3N_4)-Derived Hierarchical N-Doped Carbon" ACS Applied Energy Materials **Article ASAP** DOI: 10.1021/acsaem.2c02415
- A.M. Abuelftooh, **M. G. Fayed**, S.Y. Attia, Y.F. Barakat, N.S. Tantawy, S.G. Mohamed "A three-dimensional directly grown hierarchical graces-like Nickel Manganese Selenide for high-performance Li-ion battery and supercapacitor electrodes" Mater. Today Chem. (2022) 26, 101187.
- Samah. M. Bekhit, Saad. G. Mohamed, Ibrahim. M. Ghayad, **Moataz G. Fayed**, W. Metwally, R. Abdel-Karim, S. M. El-Raghy "Nickel selenide nanorod arrays as an electrode material for lithium-ion batteries and supercapacitors" Journal of Energy Storage (2022) 53: 105215
- T. A. Taha, **Moataz G. Fayed**, Saad. G. Mohamed "Enhanced electrochemical performance of $MgFe_2O_4/SrTiO_3$ and $MgFe_2O_4/SiO_2$ nanocomposite structures" Journal of Alloys and Compounds (2022) 925: 166660
- Ebtesam E. Ateia, Mahmoud A. Ateia, **Moataz G. Fayed**, Soliman. I. El-Hout, Saad G. Mohamed, M. M. Arman "Synthesis of nanocubic lithium cobalt ferrite toward high-performance lithium-ion battery" Appl. Phys. A (2022) 128, 483
- V. Matsukevich, A. I. Kulak, V. I. Popkov, V. I. Romanovski, **M. G. Fayed,** S. G. Mohamed "Lithium Cobalt Titanate with the Spinel Structure as an Anode Material for Lithium Ion Batteries" Inorg Mater (2022) 58, 160–164.
- Ahmed Zaki. Alhakemy, Ahmed Mourtada. Elseman, **Moataz G. Fayed**, Abu Bakr Ahmed Amine Nassr, Abd El-Hady Kashyout, Zhenhai Wen "Hybrid electrocatalyst of $CoFe_2O_4$ decorating carbon spheres for alkaline oxygen evolution reaction" Ceramics International 48 (4), 5442-5449
- Ahmed Mourtada Elseman, **Moataz G. Fayed**, Saad G. Mohamed, Deiaa A. Rayan, Nageh. K. Allam, Mohamed M. Rashad, Qun Liang Song "A novel composite CSs@$CoFe_2O_4$ as electrode by easy one-step solvothermal for enhancing the electrochemical performance of hybrid supercapacitors" *ChemElectroChem* (2020) 7.2: 526-534.

Referees

1. **Prof. Dr. Mohammed Mohammed Rashad**
   Dean of Advanced Materials Institute
   Central Metallurgical Research and Development Institute
   P.O. Box 87, Helwan, Cairo, Egypt
   E-mail: **rashad133@yahoo.com**

2. **Ass. Prof. Saad Gomaa. Mohamed**
   Mining and Metallurgy Engineering Department
   Tabbin Institute for Metallurgical Studies (TIMS)
   P.O. Box 109, Helwan, Cairo 11421, Egypt
   E-mail: **saadmohamed@tims.gov.eg**

3. **Prof. Dr. Ahmed Mohamed Hashem**
   Professor of Inorganic Chemistry
   Inorganic Chemistry Department
   National research center,
   E-mail: **ahmedh242@yahoo.com**

4. **Prof. Dr. Nageh Khalaf Allam**
   Professor of Material Science and Engineering
   Physics Department,
   American University in Cairo
   E-mail: **nageh.allam@aucegypt.edu**

5. **Ass. Prof. Ahmed Mourtada Elseman**
   Head of Electronic & Magnetic Materials Department
   Central Metallurgical Research and Development Institute,
   P.O. Box 87, Helwan, Cairo, Egypt
   E-mail: **ahmedmourtada5555@yahoo.com**