

CURRICULAM VITAE

Saad Gomaa Mohamed Mohamed, Ph.D.

Researcher and Lecturer

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Personal Information:

Date of Birth	: December 14, 1981
Marital Status	: Married
Nationality	: Egyptian
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Research Experience and Education:

Oct. 2015 – until date	Researcher and Lecturer, Mining and Metallurgy Engineering Department, Tabbin Institute for Metallurgical Studies, (TIMS). Tabbin, Cairo, Egypt.
Sept. 2016 – Aug. 2017	Research Professor, Nano Energy Materials and Processes Laboratory. School of Chemical Engineering, Yeungnam University, Gyeongsan, South Korea.
Sept. 2015 – Aug. 2016	Research Assistant, Energy Materials Lab "EML", The American University in Cairo, New Cairo, Egypt.
Sept. 2011 – May, 2015	PhD Candidate, Chemistry Department, National Taiwan University. Academia Sinica (TIGP nano Program). Taipei, Taiwan.
April, 2006 –Oct., 2015	Assistant Lecturer, Chemical Engineering Department,

Tabbin Institute for Metallurgical Studies, (TIMS). Tabbin, Cairo, Egypt.
 August 2005– Dec., 2005 Chemist, Dying lab.
 Odiba textile Co. for dying & finishing 10th of Ramadan City, Egypt.
 July 2004 – July 2005 Chemist, Clinical lab
 El Safa Clinical Lab – El Fayiuom – Egypt

Academic Record:

<i>Degree</i>	<i>Subject taken</i>	<i>Board/College/University</i>	<i>Duration</i>	<i>%Marks</i>
B. Sc.	Chemistry	Faculty of Science, Cairo University, Fayoum Branch, Fayoum, Egypt	1999-2003	84.03
M. Sc.	Physical, Analytical and Inorganic chemistry (Spcl.)	Faculty of Science, Helwan university, Helwan, Egypt.	2007-2009	Awarded
Ph.D	Chemistry (Material Chemistry-Nano Technology)	Chemistry Department, National Taiwan University. Academia Sinica (TIGP nano Program). Taipei, Taiwan	2011-2015	A ⁺

- ❖ **Title of the Master Thesis:** “Deposition of Hydroxyapatite on Titanium by Electrophoretic Technique for Biomedical Application”
- ❖ **Title of the Doctoral Thesis:** “Nanostructured Ternary Metal Oxides as Electrode Materials for High-Performance Energy-Storage Systems”

Research and Technical Skills:

- Synthesis of metal oxides and chalcogenides nanostructures and their carbon composites using different synthetic methods.
- Applications of metal oxide nanostructures in Energy related field such as Li-ion battery, Li-air battery and Supercapacitors.
- Deposition of metals, metal oxides, ceramic materials and carbonaceous materials using electrochemical, electroless and electrophoretic deposition techniques.
- Electrochemical characterization techniques such as, cyclic voltammetry, Chronoampero-potentiometry, Chronoampero-amperometry, and Electrochemical Impedance spectroscopy (EIS).
- The structural characterization by TEM, EDS, SEM, XPS, XRD, XAS, FTIR, Raman, and BET.

Current Research Interest:

- Synthesis and application of metal oxides nanostructures in Li-ion battery, Li-air battery and Supercapacitors.
 - Synthesis of solid-state electrolyte of high conductivity and fabrication of flexible all solid-state Li-ion battery and Supercapacitors.
 - Synthesis and application of metal chalcogenide nanostructures in Li-ion battery, Li-air battery and supercapacitors.
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Major Inorganic/organic Chemistry related Courses covered in Ph. D. & M. Sc. level:

- Advanced Nanotechnology
- Organometallic chemistry
- Advanced Inorganic chemistry
- Advanced analytical and environmental chemistry
- Advanced Physical chemistry
- Quantum Chemistry and Molecular Spectroscopy
- Spectroscopic identification of Compounds
- Solid State Chemistry and Group Theory

Teaching Experience:

- Energy storage materials and systems for postgraduates Students, spring 2017, School of Chemical Engineering, Youngman University, South Korea. This course is intended to provide students an overview on energy storage materials/devices with major focus on electrochemical storages including ionic batteries, metal–air rechargeable batteries, fuel cells, and supercapacitors
- Electrochemistry and Corrosion science classes (tutorial & laboratory) for postgraduates during the Master program at Chemical Engineering Department, Tabbin Institute for Metallurgical Studies, (TIMS), Tabbin, Helwan, Egypt.

Language Skill at Technical level: English (excellent), Arabic (mother tongue).

List of Publications

<https://scholar.google.co.kr/citations?user=XNbZ1usAAAAJ&hl=en>

<https://www.scopus.com/authid/detail.uri?authorId=55912795700>

1. Sayed Y. Attia, **Saad G. Mohamed**, Yosry F. Barakat, Hamdy H. Hassan, Wail Al Zoubi, Supercapacitor electrode materials: addressing challenges in mechanism and charge storage, **Reviews in Inorganic Chemistry**, 2021, <https://doi.org/10.1515/revic-2020-0022>.
2. S. Y. Ahmed, **Saad G. Mohamed**, Sayed Y. Attia, Yosry F. Barakat, M. A. Shoeib, N. S. Tantawy, High electrochemical energy-storage performance promoted by SnSe nanorods anchored on rGO nanosheets, **Journal of Electroanalytical Chemistry**, 2021, 883, 115063.
3. Soliman I El-Hout, **Saad G Mohamed**, Amira Gaber, Sayed Y Attia, Ahmed Shawky, Said M El-Sheikh, High electrochemical performance of rGO anchored

- CuS nanospheres for supercapacitor applications, **Journal of Energy Storage**, 2020, 102001, In press
4. **S. G. Mohamed**, Iftikhar Hussain, M. S. Sayed, and J. J. Shim, One-step Development of Octahedron-like CuCo_2O_4 @Carbon Fibers for High-performance Supercapacitors Electrodes, **Journal of Alloys and Compounds**, 2020, 155639. <https://doi.org/10.1016/j.jallcom.2020.155639>.
 5. S. Iqbal, U. Javed. J. J. Shim. A. H. Mady, A. M. Rabie, and **S. G. Mohamed**, Structural engineering of bimetal-organic framework via a direct etching method and conversion to phosphide for electrochemical capacitors, **Applied Materials Today**, 2020, 20,100698. <https://doi.org/10.1016/j.apmt.2020.100698>.
 6. S. Y. Attia, Y. F. Barakat, H. H. Hassan, **S. G. Mohamed**, A single-step synthesis and direct growth of microspheres containing the nanoflakes-like structure of $\text{Zn}_{0.76}\text{Co}_{0.24}\text{S}$ as a high-performance electrode for supercapacitors, **Journal of Energy Storage**, 2020, 29, 101349
 7. A. M. Elseman, M. G. Fayed, **S. G. Mohamed**, D. A. Rayan, N. K. Allam, M. M. Rashad, Q. L. Song, CoFe_2O_4 @Carbon Spheres Electrode: A One-Step Solvothermal Method for Enhancing the Electrochemical Performance of Hybrid Supercapacitors, ***ChemElectroChem***, 2020, 7 (2), 526-534
 8. S. K. Abdel-Aal, S. Y. Attia, **S. G. Mohamed**, Facile Synthesis of Mn_3O_4 -rGO Nanocomposite As an Efficient Electrode Material for Application in Supercapacitors, ***Journal of Electronic Materials*** 2019, 48 (8), 4977-4986
 9. I. Hussain, **S. G. Mohamed**, A. Ali, N. Abbas, S. M. Ammar, W. Al Zoubi, Uniform growth of Zn-Mn-Co ternary oxide nanoneedles for high-performance energy-storage applications, ***Journal of Electroanalytical Chemistry***, 2019, 837, 39-47
 10. I. Hussain, C. Lamiel, **S. G. Mohamed**, S. Vijayakumar, A. Ali, J. J. Shim, Controlled synthesis and growth mechanism of zinc cobalt sulfide rods on Ni-foam for high-performance supercapacitors, ***Journal of Industrial and Engineering Chemistry***, 2019, 71, 250-259
 11. **S. G. Mohamed**, S. Y. Attia, Y. F. Barakat, H. H. Hassan, W. Al Zoubi, Hydrothermal Synthesis of α -MnS Nanoflakes@Nitrogen and Sulfur Co-doped rGO for High-Performance Hybrid Supercapacitor, ***ChemistrySelect*** 2018, 3, 6061
 12. **S. G. Mohamed**, I. Hussain, J. J. Shim, One-step Synthesis of Hollow C-NiCo₂S₄ Nanostructures for High-performance Supercapacitor Electrodes, ***Nanoscale***, 2018, 10, 6620
 13. M. Ramadan, A. M. Abdellah, **S. G. Mohamed**, N. K. Allam, 3D Interconnected Binder-Free Electrospun MnO@C Nanofibers for Supercapacitor Devices, ***Scientific Reports*** 2018, 8 (1), 7988
 14. **S. G. Mohamed**, S. Y. Attia, H. H. Hassan, Spinel-structured FeCo_2O_4 Mesoporous Nanosheets as Efficient Electrode for Supercapacitor Applications, ***Microporous and Mesoporous Materials***, 2017, 251, 26.
 15. **S. G. Mohamed**, S. Y. Attia, N. K. Allam, One-Step, Calcination-free Synthesis of Zinc Cobaltite Nanospheres for High-Performance Supercapacitors, ***Materials Today Energy***, 2017, 4, 97.
 16. **S. G. Mohamed**, Y. Q. Tsai, C. J. Chen, Y. T. Tsai, T. F. Hung, W. S. Chang and R. S. Liu, Ternary Spinel MCo_2O_4 (M = Mn, Fe, Ni, and Zn) Porous Nanorods as Bifunctional Cathode Materials for Lithium-O₂ Batteries, ***ACS Appl. Mater. Interfaces***, 2015, 7, 12038.

17. **S. G. Mohamed**, C. J. Chen, C. K. Chen, S. F. Hu, and R. S. Liu, High-Performance Lithium-Ion Battery and Symmetric Supercapacitors Based on FeCo₂O₄ Nanoflakes Electrodes. *ACS Appl. Mater. Interfaces*, 2014, 6, 22701.
18. **S. G. Mohamed**, T. F. Hung, C. J. Chen, C. K. Chen, S. F. Hu, and R. S. Liu. Efficient Energy Storage Capabilities Promoted by Hierarchical MnCo₂O₄ Nanowire-Based Architectures. *RSC Adv.*, 2014, 4, 17230.
19. T. F. Hung, **S. G. Mohamed**, C. C. Shen, Y. Q. Tsai, W. S. Chang and R. S. Liu. Mesoporous ZnCo₂O₄ Nanoflakes with Bifunctional Electrocatalytic Activities toward Efficiencies of Rechargeable Lithium-Oxygen Batteries in Aprotic Media. *Nanoscale*, 2013, 5, 12115.
20. **S. G. Mohamed**, T. F. Hung, C. J. Chen, C. K. Chen, S. F. Hu, R. S. Liu, K. C. Wang, X. K. Xing, H. M. Liu, A. S. Liu, M. H. Hsieh and B. J. Lee., Flower-Like ZnCo₂O₄ Nanowires: toward A High Performance Anode Material for Li-Ion Batteries. *RSC Adv.*, 2013, 3, 20143.
21. M. Tatsuhiro, C. J. Chen, T. F. Hung, **S. G. Mohamed**, Y. Q. Lin, H. Z. Lin, J. C. Sung, S. F. Hu and R. S. Liu, High Specific Capacity Retention of Graphene/Silicon Nanosized Sandwich Structure Fabricated by Continuous Electron Beam Evaporation as Anode for Lithium-Ion Batteries. *Electrochimica Acta*, 2015, 165, 166.
22. **S. G. Mohamed**, A. A. Abdeltawab, M. A. Shoeib. Corrosion Behaviour and Bioactivity of Electrophoretically Deposited Hydroxyapatite on Titanium in Physiological Media (Hanks' Solution). *Materials Science-Poland*, 2012, 30, 231.
23. A.A. Abdeltawab, M.A. Shoeib, **S.G. Mohamed**. Electrophoretic Deposition of Hydroxyapatite Coatings on Titanium from Dimethylformamide Suspensions. *Surface & Coatings Technology*, 2011, 206, 43.

Patents in application

1. **S. G. Mohamed**, C. J. Chen, R. S. Liu, S. F. Hu, H. M. Liu, A. S. Liu "Electrode for energy storage device and energy storage device using the same." *US 20150294799 A1* (Oct. 15, 2015).
2. M. Tatsuhiro, C. J. Chen, T. F. Hung, **S. G. Mohamed**, R. S. Liu, S. F. Hu, H. Z. Lin, Y. Q. Lin, C. M. Sung, and B. J. Hwang. "Multilayer Si/Graphene Composite Anode Structure." *US 20150004494* (Jan. 1, 2015).

Awards

1. Taiwan International Graduate Program (TIGP)-Nano Technology Program Scholarship (07/2011-05/2015).
2. International Student Supporting Fund from National Taiwan University (7/2014 6/2015)
3. Excellent Graduation Poster Award, Department of Chemistry, National Taiwan University, (08/05/2015)
4. Dean Award, College of Science, National Taiwan University, (14/05/2015)
5. Yan best-thesis Award Department of Chemistry, National Taiwan University, (02/07/2015)

List of Awarded Funded Projects

1. NAS-ASRT (Belarus) Project, Designing Nano-Architectures Materials for High Performance Energy Storage Systems, 2018.
 2. Young Researchers Grant (STDF-YRG), STDF-Youth, Fabrication of Nanostructured-Transition Metal Sulfides for High-Performance Supercapacitors, ID 33480, 2019.
 3. Reintegration Grants (STDF-RG), STDF-Youth Project, 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, ID 35971, 2020.
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References:

1. Professor Ru-Shi Liu,

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