

## **Mostafa Hussien Sliem**

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I have 15 years of experience in academia and industry. I have published more than 30 peer-reviewed and conference proceedings articles in addition to two patents. Since I was awarded my Ph.D. in physical chemistry, I have participated in more than 10 research projects funded from different agencies inside and outside Qatar e.g. Qatar National Research Fund (QNRF), Hydro/Qatalum, Qatar Petroleum (QP) and Qatar Shell (QS). Also, I recommended many consultations for different companies like Ras Gas, Qatar Gas, Qatalum and Qatar Electricity and Water Company (QEWC). Furthermore, I mentored many young professionals at the Bachelor and Master levels.

### **Educations**

- Ph.D. in physical chemistry - Zagazig University, Egypt (2013-2019).
- M.Sc. in analytical chemistry - Zagazig University, Egypt (2008-2012).
- B.Sc. in Chemistry/Physics - Zagazig University, Egypt (2003-2007).

### **Professional experience:**

- From 2/2016-present in center for advanced materials (CAM) at Qatar university (**Senior Research Assistant**).
- From 6/2013-1/2016 in material technology unit (MTU) at Qatar university (**Research Assistant**).
- From 1/2008-5/2013 in Arab contractor for operation, maintenance, and utilities. Participate in commissioning and renovation of all plants under the Ministry of Utilities in Egypt authorization. (**Operating & Lab chemist**)

### **Research interests:**

- Atmospheric corrosion, under deposit corrosion, crevice corrosion, and intergranular corrosion.
- smart coatings, self-healing coatings, superhydrophobic coatings, and metallic coatings.
- CO<sub>2</sub> reduction, CO conversion, water splitting, mesoporous materials.
- Battery and Supercapacitor materials for energy media.

### **Teaching efforts**

- Teaching responsibilities included delivery of chemistry lab instruction, supervision for under-graduated students and grading them on lab reports.
- Tutored corrosion classes for high school students during I am a researcher program.
- Scheduled lab usage and compiled grades for post-graduate students.
- Lead physical chemistry tutoring program that included over 50 students.

### **Granted projects contribution:**

- “Smart Corrosion Control for Ultra-High Heat Flux Steam Generators” NPRP12S-0228-190182 (2020-2023)
- “Functionalized 2D graphene and MXene nanocomposites-based prototype for CO<sub>2</sub>-to-C<sub>2</sub> fuels electro-conversion with smart online monitoring sensor system” NPRP11S-1221-170116 (2019-2022)
- “New Sensor Technology for Online Monitoring of Under Deposit Corrosion Risk in Wet Sour gas Pipelines” NPRP10-0125-170252 (2018-2021)
- “Chemical analysis-based Archaeological Historical Study for different coins discovered at different locations in the State of Qatar” UREP21-043-6-004 (2018-2019)

- “Smart Corrosion Protection Strategies for Steel Materials in the Oil and Gas Industry” NPRP9-080-2-039 (2016-2020)
- “Solar Fuels via Photocatalytic Dissociation of Steam and Carbon Dioxide at Elevated Temperatures” NPRP7-485-1-09 (2015-2018)
- “Mechanical Properties and Erosion-Corrosion of High Strength Steels for Oil and Gas Transportation Pipelines in H<sub>2</sub>S environment” NPRP6-027-2010 (2013-2017)
- “Metallic Nanoparticles/Organic Inhibitors as a Corrosion Inhibition System” UREP16-156-1-024 (2014-2015).
- “Corrosion Atlas Phase I” QSTP M017 (2013-2018).

### Selected publications:

1. Mostafa H. Sliem, et al., “Corrosion inhibition of mild steel in sulfuric acid by newly synthesized Schiff base: An electrochemical, Mott-Schottky, DFT and Monte Carlo simulation Study” *Electroanalysis* 2020, 32, 1 – 15
2. Khuram Shahzad<sup>‡</sup>, Mostafa H. Sliem<sup>‡</sup>, et al., “Electrochemical and thermodynamic study on the corrosion performance of API X120 steel in 3.5% NaCl solution” *Sci. Rep.*, 2020, 10, 4314
3. A. Bahgat Radwan, Mostafa H. Sliem, et al., “Enhancing the corrosion resistance of reinforcing steel under aggressive operational conditions using behentrimonium chloride” *Sci. Rep.*, 2019, 9, 18115
4. Kamel Eid, Mostafa H. Sliem, et al., “Data on structural and composition-related merits of gC<sub>3</sub>N<sub>4</sub> nanofibres doped and undoped with Au/Pd at the atomic level for efficient catalytic CO oxidation” *Data in Brief*, 2019, 27, 104734
5. Adnan Khan, Mostafa H. Sliem, et al., “Designing and performance evaluation of polyelectrolyte multilayered composite smart coatings” *Prog. Org. Coat.*, 2019, 137, 105319
6. Kamel Eid, Mostafa H. Sliem, et al., “Rational synthesis of one-dimensional carbon nitride-based nanofibers atomically doped with Au/Pd for efficient carbon monoxide oxidation” *Int. J. Hydrogen Energy*, 2019, 44, 17943-17953
7. Kamel Eid, Mostafa H. Sliem, et al., “Precise fabrication of porous one-dimensional gC<sub>3</sub>N<sub>4</sub> nanotubes doped with Pd and Cu atoms for efficient CO oxidation and CO<sub>2</sub> reduction” *Inorg. Chem. Commun.*, 2019, 107, 107460
8. Mostafa H. Sliem, et al., "AEO7 Surfactant as an Eco-Friendly Corrosion Inhibitor for Carbon Steel in HCl solution" *Sci. Rep.* 2019, 9, 2319
9. Kamel Eid<sup>‡</sup>, Mostafa H. Sliem<sup>‡</sup>, et al., "Rational Synthesis of Porous Graphitic-like Carbon Nitride Nanotubes Codoped with Au and Pd as Efficient Catalyst for Carbon Monoxide Oxidation" *Langmuir*, 2019, 35 (9), 3421-3431
10. Khoulood Jlassi, Mostafa H. Sliem, et al., “Novel Enzyme-Free Multifunctional Bentonite/Polypyrrole/Silver Nanocomposite Sensor for Hydrogen Peroxide Detection over a Wide pH Range” *Sensors* 2019, 19, 20, 4442
11. Kamel Eid<sup>‡</sup>, Mostafa H. Sliem<sup>‡</sup>, et al., "Unraveling template-free fabrication of carbon nitride nanorods codoped with Pt and Pd for efficient electrochemical and photoelectrochemical carbon monoxide oxidation at room temperature" *Nanoscale*, 2019, 11, 11755–11764
12. Paul C. Okonkwo, Mostafa H. Sliem, et al., "Erosion Behavior of API X120 Steel: Effect of Particle Speed and Impact Angle" *Coatings* 2018, 8, 343.
13. A. Bahgat Radwan, Mostafa H. Sliem, et al., "Corrosion inhibition of API X120 steel in highly aggressive medium using stearamidopropyl dimethyl-amine" *J. mol. Liq.* 236 (2017) 220-231.
14. Okonkwo Paul C, Mostafa H. Sliem, et al., "Effect of Temperature on the Corrosion Behavior of API X120 Pipeline Steel in H<sub>2</sub>S Environment" *JMEP* 26 (2017) 3775-3783.

### **Selected conferences:**

1. **M. Sliem** et al, "Atmospheric Corrosion of 316L stainless steel at Qatar", Eurocorr 2015 conference, Graz, Austria.
2. Aboubakr Moustafa Abdullah, Adel M. A. Mohamed and **Mostafa H Sliem** "Copper Nanoparticles Effect on the Corrosion Behavior of Different Types of Nickel-Based Super Alloys" 227<sup>th</sup> ECS Meeting, Chicago, USA.
3. Aboubakr Moustafa Abdullah, Adel M. A. Mohamed and **Mostafa H Sliem** "Corrosion Behavior of Al 6063 in Qatar's Desert and Marine Environments" 230<sup>th</sup> ECS Meeting, Honolulu, USA.
4. K Eid, **M Sliem**, A Abdullah, "Controlled, template-free fabrication of porous multilayered graphitic-like carbon nitride nanosheets doped with Pt and Cu for CO oxidation reaction under ambient conditions" Abstracts ACS 257, 2019, Orlando, FL., USA
5. K Eid, **M Sliem**, A Abdullah "Facile one-pot synthesis of single-atom platinum embedded porous gC<sub>3</sub>N<sub>4</sub> nanosheets as efficient electrocatalysts for oxygen reduction reaction", Abstracts ACS 257, 2019, Orlando, FL., USA

### **Patents:**

- **Mostafa H. Sliem**, et al, Smart Design of Scalable Modified Autoprogramed Silver-based Electrode as an Efficient, Durable, and Selective Sensor for Online Monitoring of Underdeposit Chloride ions in Sour Media. USA, **underfilling**.
- Kamel Eid, **Mostafa H. Sliem** and Aboubakr M. Abdullah, Novel Scalable Nitrogen Enriched Carbon-based Nanosystems for Efficient and Prompt Capacitive Seawater Desalination under Ambient Conditions. USA, 2020, US 432743.10134.

### **Honors and certificates**

- Best poster award in Qatar-UK research network programme.
- Two times the first award in "I am a researcher program" for high school students.  
Cycle 7 <https://www.youtube.com/watch?v=NFY4BmU0ZOo>  
Cycle 9 <https://www.youtube.com/watch?v=NAXhvhbmJ-Q>
- H<sub>2</sub>S awareness for offshore field in oil and gas industry.
- US OSHA professional certificate for construction and safety management.

### **Reviewer at the Following Journals**

- Surface and coating technology.
- Applied surface science.

### **References:**

#### **1- Dr. Aboubakr M. Abdullah**

Assoc. Prof., Center of Advanced Material, Qatar University, E-mail: [bakr@qu.edu.qa](mailto:bakr@qu.edu.qa)

#### **2- Dr. Rana Abdul Shakoor**

Research Fellow, Center of Advanced Material, Qatar University, E-mail: [shakoor@qu.edu.qa](mailto:shakoor@qu.edu.qa)

#### **3- Dr. Salah Abdel Wanees**

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