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EDUCATION

Ph. D.	Materials Science, University of Alexandria, Institute of Graduate Studies & Research, Materials Science Department Dissertation: "New trends for corrosion inhibition of steel" (2005)
M. Sc.	Materials Science, University of Alexandria, Institute of Graduate Studies & Research, Materials Science Department, Dissertation: "Pitting corrosion of Nickel", (1997)
B. Sc.	Chemistry, (Distinction), Faculty of Science, University of Alexandria, (1991)

PROFESSIONAL EXPERIENCE

2018- Present	Associate Professor of Physical Chemistry Materials Science Department, Institute of Graduate Studies & Research, Alexandria University, Egypt.
2013-2015	Assistant Professor of Chemistry Head of chemistry department, Batterjee Medical Jeddah, Saudi Arabia.
2005- 2018:	Assistant Professor Materials Science Department, Institute of Graduate Studies & Research, Alexandria University, Egypt

2006	Post-doctoral Fellow University of Applied Science, Iserlohn, Germany
1998-2005	Assistant Lecturer Materials Science Department, Institute of Graduate Studies & Research, Alexandria University, Egypt
1999-2000	Graduate Research Fellow C.N.R. Italy
1992-1997	Demonstrator Materials Science Department, Institute of Graduate Studies & Research, Alexandria University, Egypt

TEACHING ACTIVITIES:

I taught various graduate and postgraduate courses that deal with:

A) TEACHING COURSES IN ALEXANDRIA UNIVERSITY

- ✓ General Chemistry: Principles and Modern Applications
- ✓ Electrochemistry and corrosion
- ✓ Principles of physical chemistry
- ✓ Surface science
- ✓ Electrochemistry
- ✓ New trends in Materials Science
- ✓ Materials Properties
- ✓ Materials Selection
- ✓ Materials Structure
- ✓ Materials Processing
- ✓ Materials and Environment
- ✓ Inspection of Corrosion
- ✓ Surface Functionalization
- ✓ Sustainability Tools

B) TEACHING COURSES IN BATTERJEE MEDICAL COLLEGE, JEDDAH, (SAUDI ARABIA)

- General Chemistry CHM 101
- Integrated basic science course for FAST- MED by Problem Based Learning (PBL)
- General Chemistry CHM 102
- Practical Chemistry Course.

C) RESEARCH STUDENTS SUPERVISED/TRAINED

<u>LEVEL</u>	<u>NUMBER OF TRAINEES</u>
PH.D. STUDENTS	5 (AWARDED) + 2 (IN PROGRESS)
MASTER STUDENTS	16 (AWARDED) + 7 (IN PROGRESS)
UNDERGRADUATE STUDENTS	300

PROFESSIONAL ASSOCIATION

- Egyptian Scientists Syndicate, Alexandria, Egypt.
- Arab Society of Materials Science, Alexandria, Egypt

AWARDS

Professor Salah Morse Award **(2005)**, the most distinguished research conducted by Scientist in the field of materials science in Egypt; presented from Ministry of Higher Education, Egypt.

COMMUNITY SERVICES AND SCIENTIFIC ACTIVITIES

- Member of quality assurance unit for IGSR- Alexandria University
- Graduate students academic Advisor
- Supervisor of Corrosion laboratory in IGSR- Alexandria University
- Member in Department of Materials Science committees
- Member of the Organizing Committee and Lecturer at the following post-experience training courses held at Department of Materials Science, Institute of Graduate Studies and Research, Alexandria:
 - Corrosion in petroleum industries, April 2012.
 - Corrosion in petroleum industries, April 2011.
 - Corrosion control by cathodic protection and materials selection. 3-6- April 2010.
 - Corrosion in petroleum industries, 2-5 March 2008
 - Corrosion control by cathodic protection, 15-18 April, 2007.
 - Corrosion and failure analysis, 24-27 September, 2005
 - Nanotechnology: Synthesis and Applications of Nanostructured Materials 1-2 April 2018 : Faculty of Science, Alexandria University

SCIENTIFIC PROJECTS

- ❖ Co-Principal Investigator of US-Egypt project entitled “Evaluation of Green Corrosion Inhibitors for steel Reinforcement in Concrete Structures”, Funded by US-Egypt Joint Research Grant Number: MAN10-009-001 (2006-2008).
- ❖ Member in project entitled "New low-emissivity and long- lasting paints for cost-effective solar collectors" funded by Europe United FP6 (2006-2010)
- ❖ Member in project entitled "Nano composite Thin Film Membranes Based on Polymers and Clays for Reverse Osmosis Utilizations" Funded by STDF (2012-2013)
- ❖ Member in project entitled “Investigating the effect of sea level rise on buildings and infrastructure and the suggested preventive measures”, Funded by Alexandria Research Center for Adaptation to Climate change (ARCA) (2012-2013).

PUBLICATIONS

A. AUTHORS DATABASE

<https://www.scopus.com/authid/detail.uri?authorId=16174905600>

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

<https://orcid.org/0000-0002-4785-632X>

B. PATENTS

1. Patent Number 28394/2014 “Eco Friendly Method for inhibition the Scale Formation and Metals Corrosion by herbs and Algae Extractions”, Egyptian Patent Office, Academy of Scientific Research & Technology. (2017)

C. INTERNATIONAL JOURNALS

2. E.Khamis, E., **A. Hefnawy**, and A. M. El-Demerdash. "Acid cleaning of steel using arghelecho friendly corrosion inhibitor" *Materialwissenschaft und*

Werkstofftechnik 38, 3 (2007): 227-232. WILEY-VCH VERLAG GMBH, (IF₂₀₀₇= 0.317).

3. Alshima'a, A. Massoud, **Ahmed Hefnawy**, Vratislav Langer, Mohamed A. Khatab, Lars Öhrstrom, and Morsy AM Abu-Youssef. "Synthesis, X-ray structure and anti-corrosion activity of two silver (I) pyrazino complexes." *Polyhedron* 28, 13 (2009): 2794-2802. Elsevier B.V. (IF₂₀₀₉= 2.207)
4. A.M. Abdel-Gaber, E. Khamis, and **A. Hefnawy**. "Utilizing Arghel extract as corrosion inhibitor for reinforced steel in concrete." *Materials and corrosion* 62, no. 12 (2011): 1159-1162. WILEY-VCH VERLAG GMBH, (IF₂₀₁₁=1.173)
5. M. Mahgoub, and **Ahmed Hefnawy**. "Inhibition Mechanism of Pitting Corrosion of Nickel in Aqueous Medium by Some Macrocyclic Compounds." *Open Journal of Physical Chemistry* 2, 4 (2012): 221-227. Scientific Research Publishing, (IF₂₀₁₂= 0.44).
6. Shaker Ebrahima, Radwa El-Raey, **Ahmed Hefnawy**, Hesham Ibrahim, Moataz Soliman, Tarek M. Abdel-Fattah, "Electrochemical sensor based on polyanilinenanofibers/single wall carbon nanotubes composite for detection of malathion" *Synthetic Metals*, 190 (2014): 13–19, Elsevier B.V. (IF₂₀₁₄= 2.252)
7. Ebrahim, Sh, R. El-Raey, **A. Hefnawy**, H. Ibrahim, and M. Soliman. "A Novel Chloropyrifos Electrochemical Sensor Based on Polyaniline/Carbon Nanotubes Composite." *Key Engineering Materials*, 605 (2014): 99-102. (IF₂₀₁₄= 0.29)
8. **Ahmed Hefnawy**, Rafik Abbas, Ahmed Hussein, Nashwa Hafez, "Enzymatically modified chitosan by *Streptomyces lividans* as a green inhibitor for steel corrosion in acidic medium", *International Journal of Chemical & Applied Biological Sciences* 1, 6 (2014):124-131. Medknow Publications.
9. Abdelrahman H. Hussein, Mohamed A. Gepreel, **Ahmad M. Hefnawy**, Sherif H. Kandil " Effect of heat treatment on the microstructure of Ti-Nb-Ta base alloys for biomedical applications", *International Journal of Chemical & Applied Biological Sciences*, 1 (2014), 119. Medknow Publications.
10. Abdelrahman H. Hussein, Mohamed A.-H. Gepreel, Mohamed K. Gouda, **Ahmad M. Hefnawy**, Sherif H. Kandil "Biocompatibility of new Ti–Nb–Ta base

alloys." *Materials Science and Engineering: C* 61 (2016): 574-578. Elsevier B.V. (IF₂₀₁₆= 4.164).

11. Essam Khamis, Essam El-Rafey, Ashraf Moustafa Abdel Gaber, **Ahmed Hefnawy**, Nihal Galal El-Din Shams El-Din, and Mayssa Salah El-Din Esmail Ahmed. "Comparative study between green and red algae in the control of corrosion and deposition of scale in water systems." *Desalination and Water Treatment* 57, 50 (2016): 23571-23588. TAYLOR & FRANCIS INC, (IF₂₀₁₆= 1.631).
12. Wael I. El Dessouky, Rafik Abbas, Wagih A. Sadik, Abdel Ghaffar M. El Demerdash, and **Ahmed Hefnawy**. "Improved adhesion of superhydrophobic layer on metal surfaces via one step spraying method" *Arabian Journal of Chemistry* 10 (2017): 368–377. Elsevier B.V. (IF₂₀₁₆= 4.552)
13. Elkhoshkhany, **Ahmed Hafnawy**, and Alaa Khaled "Electrodeposition and corrosion behavior of nano-structured Ni-WC and Ni-Co-WC composite coating" *Journal of Alloys and Compounds* 695 (2017): 1505–1514. Elsevier B.V. (IF₂₀₁₆=3.133)
14. Soha Gaballah, Nader Shehata, Mohamed Shabaan, Shabaan Noseir, **Ahmed Hefnawy**, Aya Hamed, Effat Samir "Corrosion Inhibition of Aluminum in Hydrochloric acid Solution Using Ceria Doped Polyvinyl Chloride Nanofiber" *International Journal of Electrochemical Science* 12 (2017) : 1094 – 1105. ESG Publication, (I.F₂₀₁₆= 1.469)
15. Rafik Abbas, N. Elkhoshkhany, **Ahmed Hefnawy**, Shaker Ebrahim, and Aya Rahal, "High stability performance of Superhydrophobic modified fluorinated graphene films on Copper Alloy substrates", *Advances in Materials Science and Engineering*, 2017 (2017) HINDAWI LTD (IF₂₀₁₆= 1.299).
16. **Ahmed M. Hefnawy** and Salah F. Abdellah Ali " Arghel Extract: A promising Green Corrosion Inhibitor" *Protection of Metals and Physical Chemistry of Surfaces*, 53, 6, (2017):1120-1124. SPRINGER (IF₂₀₁₆= 0.707)
17. **A. Hefnawy**, N. Elkhoshkhany, and A. Essam " Ni–TiN and Ni-Co-TiN composite coatings for corrosion protection: Fabrication and electrochemical

characterization" *Journal of Alloys and Compounds* 735 (2018): 600-605.
Elsevier B.V. (IF₂₀₁₆=3.133)

18. Rafik Abbas, **Ahmed Hefnawy**, Wael I El-Dessouky , Asmaa El-Halag, Wagih A Sadik and Abdel Ghaffar M El-Demerdash "Effect of Durable Superhydrophobic FS/PS Using DCTES on Carbon Steel". *Journal of Material Sciences & Engineering* 7 (2018): 408.
19. F.M Mahgoub., **A.M Hefnawy**, A.M Abo Helwa , M.A Darweesh" Strip Thickness Effect on Scale Thickness and Picklability for "S235JR", *DJ Journal of Engineering Chemistry and Fuel*, (2018) Vol. 3(2), pp. 1-8.
20. F.M. Mahgoub, **A. Hefnawy**, M. El-Shnawie , A. Esmail., "Preparation and Characterization of an Emulsion Paint Based on Arghel Extract as an Eco-Friendly Corrosion Inhibitor", *Key Engineering Materials*, 786 (2018) 149-158,

D. INTERNATIONAL CONFERENCES

21. Acid Corrosion Inhibition of Nickel by Some Organic/Macrocyclic Compounds
F. M. Mahgoub, B. A. Abd-El-Nabey, M. Khalifa, and **A. El-Hefnawy**.
Science and Technology of Polymers and Advanced Materials (1998): 175–184.
Springer US, ISBN: 978-1-4899-0114-9.
22. Extract of Some Herbs as Environmentally Friendly Inhibitors for Corrosion of Steel in Acidic Medium.
Khamis, M. El-Gamal, A.M. El-Demerdash and **A. Hefnawy**.
7th Arab International Conference on Material Science, Recycling and Reuse of Materials, Alexandria, Egypt, 17–20 March 2002, p. 235.
23. Using New Environmentally Friendly Natural Products For Some Different Corrosion Control Applications.
E. Khamis, A.M. Abdel-Gaber, B.A. Abd-El Nabey, E.M.E. Mansour, Sh. Adeel, O. Abd-El-Latef, **A. Hefnawy**, H. Aglan, and A. Ludwick.
First International Conference and Exhibition on Oil Field Chemicals, National Oil Corporation Petroleum Research Centre & Libyan Chemical Society, Tripoli, Libya, 8 – 10 December 2003.
24. Environmentally Friendly Natural Products as Corrosion Inhibitors in Some Different Industrial Applications.

E.Khamis, A.M. Abdel-Gaber, B.A. Abd-El Nabey, **A. Hefnawy**, H. Aglan, and A. Ludwick.

First International Environmental Engineering Conference (ASCEE), Ain-Shams University, College Of Engineering, 11-12 April **2005**.

25. Utilizing Some Environmentally Friendly Natural Products in Controlling Corrosion Phenomena and Scale Formation.

E. Khamis, A.M. Abdel-Gaber, B.A. Abd-El Nabey, **A. Hefnawy**, H. Aglan, and A. Ludwick.

First World Congress on Corrosion in the Military: Cost Reduction Strategies, Grand Hotel Vesuvio – Sorrento, Italy, 6-8 June **2005**.

26. Using new functionalized polymer as corrosion inhibitors for mild steel.

M Y. Abdelaal, **A. Hefnawy** and M. Raouf

The 9th Arab International Conference on Materials Science, Alexandria, Egypt (**2007**)

27. Correlation between times related noise charges and corrosion rate

A. Hefnawy.

The 9th Arab International Conference on Materials Science, , Alexandria, Egypt (**2007**)

28. Enhancement of Corrosion Behaviour of Steel via Cr and Nano-Occulant Alloying.

E. Abdel Aziz, **Ahmed Hefnawy**, Rafik Elady, Mahmoud Nasr &Taha Mattar.

The 30th Annual Conference International Conference on Corrosion Mitigation and Surface Protection Technologies, Dec.10-13, Hurghada, Egypt, (**2012**)

29. Assessment of the mechanical properties and biocompatibility of new beta titanium alloy for biomedical applications.

Abdelrahman Hussein, Mohamed Gepreel, **Ahmed Hefnawy** and Sherif Kandil,

14th Arab International Conference on Materials Science, Dec.1-3, Alexandria, Egypt. (**2013**).

30. Corrosion study of MMFX Steel electrodeposited with Ppy doped with 2-acrylamido-2-methyl-1-propanesulfonic acid sodium salt.

Ahmed Hefnawy, Dina Mostafa,

16th Arab International Conference on Materials Science, Materials and Society,
Dec.3-5, Alexandria, Egypt **(2016)**

31. Green Corrosion Inhibitors(plenary lecture)

Ahmed Hefnawy

The 17th Arab International Conference of Materials Science

“Materials for Novel Applications” Alexandria 18-20 December **(2017)**

32. Effect of Steel Chemistry and Rolling Parameters on Picklability

F.M. Mahgoub, A. Hefnawy and A. M. Abo Helwa

The 17th Arab International Conference of Materials Science

“Materials for Novel Applications” Alexandria 18-20 December **(2017)**

33. A Promising Ecofriendly Corrosion Inhibitor

A. Hefnawy, F.M. Mahgoub and R. Zarraaa

The 17th Arab International Conference of Materials Science

“Materials for Novel Applications” Alexandria 18-20 December **(2017)**

34. Arghel Extract as an Environmentally Friendly Anti-Corrosion and Anti-Scalent in
Industrial Water Systems

E Khamis, E. El- Rafey, A Abdel-Gaber, **A. Hefnawy** and M Salah El-Din.

IOP Conf. Series: Materials Science and Engineering 301 **(2018)** 012149

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REFERENCE PERSONS

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