

## Curriculum Vitae

**Name:** Prof.Dr. Ibrahim Mohamad Ghayad

Date and Place of Birth: 12/5/1968, Helwan

**Permanent Position:** Prof., Acting Dean, Metal Technology Institute,  
Central Metallurgical Research And Development Institute (CMRDI),  
P.O Box 87 Helwan, Cairo, Egypt.

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Scopus H index: 9      Google Scholar H index: 11



### Academic Award

- B.Sc. Chemistry, Faculty of Science, Cairo University with honor degree, May 1989
- M.Sc., Faculty of Science, Cairo University on “ Corrosion Behavior of Candidate Paper-Machine White-Water” , May 1994.
- Ph. D., Faculty of Science, Cairo University on “Scale Inhibitors in Water Cooling Systems”, Oct. 1999.

### Introduction

I have been working in the field of corrosion since 1990. I have excellent experience with all types of corrosion testing and monitoring techniques. I have excellent experience with conventional and advanced coating techniques. I have excellent experience with cathodic protection technology. I have excellent experience with microscopic investigation and surface characterization of metal coatings, corroded surface as well as metallurgical aspects of corrosion.

### Language

- English: Excellent writing & speaking      - French: Basics
- Germany: Basics      - Japanese: Basics

### Computer Skills:

MS Word, Power Point, Excel, internet skills

### Research Interests

- Electrochemistry    - Corrosion behavior of metallic substrates    - Cathodic Protection
- Evaluation of corrosion inhibitors      - Laser surface modification of metals
- Corrosion and protection of biomaterials    - Surface coating Technology

### Short Biography

1. 1990-1995: Research assistant, Corrosion Department, Central Metallurgical Research and Department Institute (CMRDI).
2. 1995-1999- Assistant Researcher, Corrosion Department, Central Metallurgical Research and Department Institute (CMRDI).
3. 1999-2008 : Researcher, Corrosion Department, Central Metallurgical Research and Department Institute (CMRDI).

4. 2008-20015 : Assoc. Professor, Corrosion Control and Surface Protection Department, Central Metallurgical Research and Department Institute (CMRDI).
5. 2015-Present: Professor, Corrosion Control and Surface Protection Department, Central Metallurgical Research and Department Institute (CMRDI).
6. Nagoya International Training Center, Japan, May- September 1997, Four-months training in Japan the field of "Surface Modification Technology for Mate
7. Institute of Materials Science, University of Connecticut, USA , July-December 2000, Post doctoral scholarship in the field of " Laser Processing of Materials"
8. Materials Department, Imperial College of Science and Technology, England, Jan-May 2001, Post doctoral scholarship in the field of "Cathodic Corrosion Protection".
9. 2006-2011, Research Associate, Chemistry Dept., Faculty of Science, Kuwait University.

### **Teaching Experience**

#### ***Academic***

- Corrosion Testing and Monitoring: M.Sc. course in El-Tibbin Institute for Metallurgical Studies, Cairo, Egypt, 2003-2006.

#### ***Industrial short training courses:***

1. Corrosion monitoring training program for the technicians in Assuit Petroleum Refining Company, Egypt, July 2004.
2. Cathodic protection of oil tanks, Sumed Company for Petroleum Pipelines, August, 2004, Alexandria, Egypt.
3. Corrosion and Corrosion Control for Engineers in the Ferrous Alloys Factory, CMRDI, Egypt, June 2005.
4. Acid Pickling (three training programs), for Technicians in Kandeel Pickling Company, CMRDI, Egypt, July-August, 2005.
5. Corrosion and corrosion control, Delta Fertilizer Co., March 2013.
6. Corrosion basics, Mechanical Engineering Society, years 2012, 2013, 2014, 2015, 2017,2018, 2019 .
7. Corrosion, coating and cathodic protection technologies, for private sector, years 2017 & 2019.
8. Performed many seminars on corrosion and cathodic protection for the people in petroleum industry.

### **Research Projects**

- Scale and corrosion inhibitors in water cooling systems Sponsored by the Scientific Research Academy in cooperation with Abu-Zaabal Fertilizers and Chemical Company (1991) (Research Team Member).
- Corrosion of Pipes of ABU-TARTUR Phosphate Beneficiation Pilot Plant Sponsored by ; The Excusive Organization for Industrial and Mining Projects (Feb. 1996) (Research Team Member).
- Production of Polymeric Scale Inhibitors In Water Cooling Systems, Sponsored by the Scientific Research Academy (1999-2001) (Research Team Member).
- Inspection of the Efficiency of Cathodic Protection of Petroleum Pipes of, Petroleum Pipes Company, Egypt (Sept. 1997) (Research Team Member).
- Inspection of the Efficiency of Cathodic Protection of Pipes of SUMID Petroleum Transportation Company, Egypt, 2003 (Research Team Member).

- Enhancing Corrosion Resistance of Steel Alloys Using Laser Surface Modification Technique, Egypt Academy of Scientific Research, 2004-2006 (PI).
- The effect of sulfide pollution on the inhibition efficiency of benzotriazole against the corrosion of copper and its alloys, Kuwait Science Foundation and Kuwait University, 2003-2007 (Research Team Member).
- Effect of chloride ions on the selective dissolution of brass, Kuwait Science Foundation and Kuwait University, 2006-2009 (Research Team Member).
- Desulfurization of Sulfide Polluted Brines, Kuwait Science Foundation and Kuwait University, 2004-2008 (Research Team Member).
- Effect of some novel azoles on the corrosion of copper, Kuwait Science Foundation and Kuwait University, 2009-2011 (Research Team Member).
- Recovery of zinc from zinc dross of hot-dip galvanizing plants using pyrometallurgical and electrorefining methods, STDF Project, 2012-2104 (PI).
- Capacity building grant "Establishment *plasma enhanced and laser enhanced chemical vapor deposition unit*", STDF Project, 2012-current (CoPI).
- Development of Magnesium Alloys for Biomedical Applications, STDF Project, 2013-Current (Research Team Member).
- "Technology Development and Demonstration" Satellite –TeDDSat.1", STDF Coalition Projects (Research Team Member).
- PI of the project "Replacing the Hot-Dip lead-Tin Coating on Copper With An Environmentally Friendly Plating Technique" (2019-2020).
- PI of the project "Manufacturing of mobile sodium hypochlorite and oxygen generators for disinfection and artificial respiration purposes", Academy of scientific research and technology (ASRT) project, May 2020- March 2021.
- CoPI of the project "Localization hydroxyapatite coating technology of medical implants in Egypt", ASRT project, 2020-current.
- PI of the project "Local Development of Mixed Metal Oxides Coating Technology of Brine Electrolyzers Electrodes Used in ChlorAlakali Industry"m STIFA Project, Current.

#### **Internal Projects (Funded by CMRDI)**

- PI of the project "studying the inhibition of corrosion of copper and its alloys in solutions of clean and sulfide contaminated salt solution." The project lasted for two years (2011-2013).
- A member of the research team of the project "Studying Stress Corrosion Cracking of Magnesium Alloy AZ91 (2013-2014).
- PI of the project "Studying the effect of partial replacement of Mo with W on corrosion resistance steel AISI 316 in seawater" (2014-2015).
- PI of the project "electrodeposition of thin films of silicon from ionic solutions" (2016-2018).
- PI of the project "Corrosion inhibition of copper and its alloys using some tetrazole derivatives" (2018-2019).

- PI of the project "Replacing the Hot-Dip lead-Tin Coating on Copper With An Environmentally Friendly Plating Technique" (2019-2020).

### **Industrial Services**

- Studying of the Performance of Corrosion Inhibitors in Gulf of Suez Petroleum Company Sponsored by; GUPCO (Sept. 1996).
- Failure Analysis of Well A-1 3.5 inch Tubing String Sponsored by; ESSO Suez INC. (Dec. 1995).
- Corrosion of El-Ahram Drainage Pipelines-Discharge Line 5-4-1 Sponsored by: Egyptian Contract Company (Feb. 1995).
- Corrosion of Self-Extinguished Pipes in Taki Company (March 1995).
- Corrosion of Water Boiler of Cleopatra Hospital (Aug. 1994).
- Corrosion failure analysis of boiler tubes, Kafr El-Dwar Power Station, Dec. 2011.
- Corrosion failure analysis of 4 inch pipe, Khaldia Petroleum Co, Nov. 2012.
- Pitting corrosion testing of stainless steel alloys, Petrojet Co, Dec 2012.
- Failure analysis of tube Heat exchanger, Sinai Co for Chemicals and Services, August 2013.
- Corrosion Failure of Cast Iron Kiln Body, Nile Sugar Co, Oct. 2013.
- Inspection of super heated steam pipes, Damnhour Power Station, Nov. 2013.
- Failure Analysis of a Screwed Bar in an Oil Well, Oasis Co, Oct. 2014.
- Investigating and suggesting solutions for the problems of hot-dip galvanizing process, Al-Nasr Co for Steel Pipes, Feb-June 2015.
- Inspection of natural gas tanks in a gas supply station, Gas-Tech Co, Feb. 2015.
- Failure of Steam Trap in Abukir Power Station, March 2015.
- Corrosion Failure of Stainless Steel Tube, Nile Sugar Co, March 2015.
- Inspection of fire extinguishing pipelines, Al-Korimat Power Station, April 2015.
- Corrosion Failure Analysis of Central Cooling Unit, Novotel Hotel at Sharm El-Shaikh, July 2015.
- Failure analysis of a leaf spring eye for a carry, Suzuki Co, July 2015.
- Treatment of stains developed on copper pushing, Egyptian-Germany Co, Sept. 2015.
- Corrosion Failure Analysis of EB2 Flange and Reducer, Wastany Petroleum Co, Oct. 2015.
- Corrosion Failure Analysis of the cooling unit of the American University in Cairo, December 2015.
- Supervising Cathodic Protection of Fire Fighting Pipelines, Al-Korimat Power Station, 2014-2016.
- Corrosion Failure Analysis of EDEEP 10 Steel Tube, Submitted to Agiba Petroleum Co, March 2016.
- Failure Analysis of Radiator Al Tube, Submitted to Auto Cool Co, May 2016.
- Failure Analysis of Radiator Al Tube Subjected to Sandy Environment, Submitted to Auto Cool Co, July 2016.
- Team member supervising Cathodic Protection of Fire Fighting Pipelines, Al-Korimat Power Station, Report was submitted.
- Intergranular Corrosion (IGC) testing of welded stainless samples according to ASTM A262 Practice C for Petrojet Co, May, 2017.
- Analysis of deposits of cooling tower in Kempinsky Hotel, July, 2017.

- Intergranular Corrosion (IGC) testing of welded stainless samples according to ASTM A262 Practice E for Orascom Construction Co, Aug. 2017.
- Intergranular Corrosion (IGC) testing of welded stainless samples according to ASTM A262 Practice C for Petrojet Co, Aug., 2017.
- Evaluation of 6 corrosion inhibitors for Wstany Petroleum Co, Aug. 2017.
- Evaluation of a corrosion inhibitor for Nile Flowchem Co, Nov. 2017.
- Intergranular Corrosion (IGC) testing of welded stainless samples according to ASTM A262 Practice E for Orascom Construction Co, Oct. 2017.
- Evaluation of the corrosion resistance of stainless steel alloy in sewage environments for Misr Concrete Development Co, Nov. 2017.
- Investigating the Suitability of Stainless Steel 316 in Sewage Gases, Misr Concrete Developing Co, Jan 2018.
- Intergranular Corrosion (IGC) testing of welded stainless samples according to ASTM A262 Practice E for Orascom Construction Co, March 2018.
- Investigating the Suitability of Glass Reinforced Plastic (GRP) In Sewage Gases, Misr Concrete Developing Co, March 2018.
- Evaluation of Al-In sacrificial anodes cased by casting Technology Lab., CMRDI, May 2018.
- Intergranular Corrosion (IGC) testing of welded stainless samples according to ASTM A262 Practice E for Orascom Construction Co, May 2018.
- Evaluation of corrosion behavior of fiber reinforced plastic (FRP) according to NACE TM0298 Standard, Engineering Petroleum Services Co, July 2019-Current.
- Failure analysis of Ammonia Tank in A fertilizer Co, Ahla Egypt Co, Aug-Oct. 2019.
- Investigating the compatibility of two steel tubes API 5L PSL 2 Grade B to NACE MR0175 Standard, SAN Misr Co, Oct. 2019.
- Evaluation of corrosion behavior of fiber reinforced plastic (FRP) according to NACE TM0298 Standard, Engineering Petroleum Services Co, Aug 2019-Current.
- Evaluation of Anodizing layer on 6063 Al alloy, El-Nasr Trading Co, Jan 2020.
- Intergranular Corrosion (IGC) testing of AISI 316 sample according to ASTM A262 Practice E for Energya Co, Jan 2020.
- Evaluation of Reinforcing Steel After Fire Accident For Al-Kharafy Construction Co, Jan 2020.
- Evaluation of galvanizing layer thickness and weight, Feb 2020
- Evaluation of galvanizing layer thickness and weight, Feb 2020
- Failure analysis of check valve , Feb 2020
- Failure analysis of SS wire, Abu-Messalam Co, Feb 2020.
- Evaluation of boiler tubes in Sidi Krir power station 3&4, Oct. 2021
- Evaluation of boiler tubes in Sidi Krir power station 3&4, March 2021
- Root cause analysis of failed boiler tube, Sidi Krir power station 3&4, March 2021.
- Investigating the corrosion of carbon steel tubes, Sakr Factory, Industrial Arab Organization, June 2021.

## **List of Publications**

### ***International Journals (Refereed)***

1. Z. Abdel Hamid and I. M. Ghayad, Characteristics of Electrodeposition of Nickel-Polyethylene Composite Coatings, J. of M. Letter, p. 238, April 2002.
2. Khaled M. Ibrahim and Ibrahim M. Ghayad, Corrosion and Wet Abrasion of Some Ni-Hard Alloys, Steel Grips, No 4, July/August 2004, pp.274-278.
3. Ibrahim M. Ghayad, TahaMatar, AimanFathy and Hassan H. El-Sentriesy, Influence of Vanadium Microalloying on the Corrosion Behavior and Mechanical Properties of Reinforcing Steel in Concrete, Steel Grips, No 4, July/August 2004, pp.291-295.
4. Z. Abel-Hamid, I.M.Ghayad and K.M.Ibrahim, " Electrodeposition and Characterization of Chromium-Tungsten Carbide Composite Coatings From Trivalent Chromium Bath", Surf. Inteface Anal. 2005; **37**: 573-579.
5. F. M. Al Khrafai, A. M. Abdullah, I. M. Ghayad and B. G. Ateya, Effect of sulfide pollution on the stability of the protective film of benzotriazole on copper, Applied Surface Science, 253 (2007) 8986–8991.
6. I. M. Ghayad, M. A. Shoeib, T. Mattar, R. M AbuShaiba and H. M. Hussein "Enhancing Corrosion Resistance of Stainless Steel 304 Using Laser Surface Treatment", Key Engineering Materials, Vol. 384 (2008) pp 157-183.
7. F. M. Al Kharafi, I. M. Ghayad, and B. G. Ateya, R7apid Intergranular Corrosion of Copper in Sulfide-Polluted Salt Water, Electrochemical and Solid-State Letters, **11** (4) G15-G18 (2008).
8. F. M. Al Kharafi, B. G. Ateya and I. M. Ghayad, Dezincification of Brass in Hot Concentrated Salt Water, CORROSION, 2009, 65, 7, 419-426.
9. B. G. Ateya, F. M. Al Kharafi, and I. M. Ghayad, "Effect of Oxygen Bubbling on the Dissolution of Brass in Acidified Sodium Sulfate Solution Under Free Corrosion Conditions", e-J. Surf. Sci. Nanotech. Vol. 8 (2010) 17-20.
10. F. M. Al Kharafi, A. Y. Saad, B.G. Ateya, I. M. Ghayad, Electrodeposition and surface characterization of sulfur on polycrystalline platinum from sulfide polluted Brine, Journal of Chemistry and Chemical Engineering, 4 (2) (2010) 15-21.
11. F. M. Al Kharafi, A. Y. Saad, B.G. Ateya, and I. M. Ghayad, Electrochemical oxidation of sulfide ions on platinum electrodes, Modern Applies Science, 4 (3) (2010) 2-11.
12. F.M. Al Kharafi, I.M. Ghayad and R.M. Abdullah, "Effect of hydrogen peroxide on the corrosion of brass in acidified sodium sulfate solution under free corrosion conditions ", J. Mater. Environ. Sci. 1 (1) (2010) 58-69.
13. Faiza M. Al Kharafi, Nouria A. **Al-Awadi**, Ibrahim M. Ghayad, Novel Technique for the Application of Azole Corrosion Inhibitors on Copper Surface, Materials Transactions, 51 (9) (2010) 1671-1676.
14. F. M. Al Kharafi, N. A. Al-Awadi, I. M. Ghayad, R. M. Abdullah and M. R. Ibrahim Corrosion Protection of Copper Using Azoles Applied on Its Surface at High Temperature Under Vacuum, Int. J. Electrochem. Sci., 6 (2011) 1562 – 1571.
15. F. M. Al Kharafi, I. M. Ghayad and B. G. Ateya, Sulfide Induced Intergranular Corrosion of Copper in Salt Water Containing Benzotriazol, e-J. Surf. Sci. Nanotech. Vol. 9 (2011) 306.
16. F.M. Al Kharafi, I.M. Ghayad and R.M. Abdullah, Effect of chlorine gas bubbling on the dezincification of brass in acidified sodium sulfate solution under free corrosion conditions, CORROSION, 67 (2011) 115002-1-115002-6.

17. F.M. Al Kharafi, I.M. Ghayad and R.M. Abdullah, Corrosion Inhibition of Copper in Non-polluted and Polluted Sea Water Using 5-phenyl-1-H-tetrazole, *Int. J. Electrochem. Sci.*, 7 (4) (2012) 3289-3298.
18. F.M. Al Kharafi, I.M. Ghayad and R.M. Abdullah, Corrosion inhibition of copper in sea water by 4-Amino-4H-1,2,4-triazole-3-thiol, *CORROSION* 69 (1) (2012) 58-66.
19. Ibrahim M Ghayad, Nabil N Girgis and A. Nagy Abdul Azim, Effect of Some Alloying Elements and Heat Treatment on the Corrosion Behavior of AZ91 and ZM60 Magnesium Alloys, *International J. of Metallurgical and Materials Science and Engineering*, 3 (2) (2012) 21-32.
20. I.M. Ghayad and A.Y. Saad, Corrosion Inhibition of Cu-37Zn and Cu-10Ni Alloys in Simulated Sea Water Using Benzotriazole, *Journal of Metallurgical Engineering (ME)*, 2 (3) (2013) 100-106.
21. S .A .Al-Taher, I.M .Ghayad, K .M .Ibrahim and Y.E .Barakat, "The effect of pitting corrosion on the fatigue strength of 304 and 316 stainless steel alloys", *Journal of Metallurgical Engineering (ME)*, 3 (1) 2014 7-12.
22. S.M. Abd El Hallem, I. M. Ghayad, M. Eisaa , N. Nassif, , M.A.Shoeib, H.Soliman, Effect of Ultrasonic and Mechanical Vibration on the Corrosion Behavior of Mg-3Zn-0.8Ca Biodegradable Alloy, *Int. J. Electrochem. Sci.*, 9 (2014) 2005-2015.
23. Wafaa A. Ghanem, Ibrahim M Ghayad, Ghalia A. Gaber, Corrosion behavior of reinforcing steel in cement partially replaced with Metakaolin in 3.5% NaCl and 5% MgSO<sub>4</sub> solutions, *International J. of Metallurgical and Materials Science and Engineering*, 3 (2) (2014) 1-7.
24. W.M.Hussein, E.M. Attia, W,A,Ghanem and Ibrahim M Ghayad, Electrochemical behavior and corrosion inhibition of zinc electrode in solutions of (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> containing Ce (IV) ions, *Researcher Journal*, 6 (1) 2014.
25. Ibrahim M Ghayad, Z. Abdel Hamid, N. Gomaa, Case Study : Corrosion Failure of Tube Heat Exchanger, *Journal of Metallurgical Engineering (ME)* 4, 2015 57-61.
26. Ibrahim M. Ghayad, Nabil N. Girgis, Wafaa A. Ghanem, Laser surface Treatment of Metal Implants : A Review Article, *Journal of Metallurgical Engineering (ME)* 4, 2015 48-56.
27. Z. Abdel Hamid, Ibrahim M Ghayad, N. Gomaa, Corrosion Failure of 4" Pipeline of a Gas Production Well in Egypt Western Desert, *Journal of Metallurgical Engineering (ME)* 4, 2015 62-68.
28. I. M. Ghayad, M Shoeib, N.N. Girgis, H. Soliman, S.M. Abd El Hallem, Effect of Surface Active Agents on the Performance of Hydroxiapatite Coating Electrodeposited on Mg-3 Zn-0.8 Ca Alloy, *Mater. Environ. Sci.* 6 (9) (2015) 2358-2366.
29. I.M. Ghayad , M.A. Maamoun, W.A. Metwally, Z.M. El-Baradie, and A.N. Abdel-Azim Corrosion Behavior and Surface Modification of Mg-Zn Implant Alloys, *J Mater Eng Perform*, Issue 10, 2016, DOI: 10.1007/s11665-016-2258-2.
30. Yahia Sarhan, Maamoun Abel Hamid, Yasser K. Abdel-Monem, Fakiha Heikal & I.M. Ghayad Alternating Current Electrophoretic Deposition of Hydroxyapatite Composite Coating on Mg-0.8wt.%Ca-3%wt.%Zn alloy, *Journal of chemistry & Materials Research*, Inpress, Vol 10, No 2, pp.24-37, 2018.
31. N. Nassif, Z. Abdel Hamid, I. M. Ghayad, Yasser K. Abdel-Monem, Amal E. Ismail Effect of Potentiostatic Double Pulse Parameters on the Electrodeposition of Silver Nanoparticles for Electrocatalytic Oxidation of Ethanol in Fuel Cells, *Mater. Environ. Sci.* 9 (12) (2018) 3180-3189.
32. N. Nassif, Z. Abdel Hamid, I. Ghayad, Yasser K. Abdel-Monem, Amal E. Ismail, Evaluation of Ag as an Active Direct Ethanol Fuel Cell Electrode Catalyst Prepared by Pulsed Current Electrodeposition Technique, *Egypt. J. Chem.* Vol. 62, No. 9 (2019).

33. Abdul-KhalekYounes, Ibrahim M. Ghayad, EmelBayol, FatmaKandemirl, Corrosion Inhibition of Copper in Sea Water Using Derivatives of Thiosemicarbazides, *Chemistry and Materials Research*, 10 (5) (2018) 69-75.
34. Abdul-KhalekYounes, Ibrahim Ghayad, Emel B. Ömer and FatmaKandemirli, Corrosion Inhibition of Copper in Sea Water Using Derivatives of Tetrazoles and Thiosemicarbazide, *Innovations in Corrosion and Materials Science*, 2018 (8) 60-66.
35. Ahmed Ismail ZakyFarahat, Zenab Abdel Hamid, Ibrahim Ghayad, Nasser Gomaa, Effect of Elevated Temperature and High Vibration on Centrifugal Gas Pump Separator of Oil Mine Submerged in Salt Water, *Saudi J Eng Technol*, DOI: 10.21276/sjeat.2019.4.5.5
36. Salah Eldin k. A. Abdulhamid, Ibrahim M Ghayad, Fatma Kandemirli, Electroless Plating of Ni-B Composite Coating on AZ31 Mg alloy, *Chemistry and Materials Research*,10 (7) (2018) 11-19.
37. *Abdul-KhalikYounis, Ibrahim M. Ghayad, FatmaKandemirli*, Quantum Chemical Study on the Corrosion Inhibition of Copper Using Some Thiosemicarbazides and Tetrazoles, *Chemistry and Materials Research*, 11 (2) (2019) 28-35.
38. *Salah Eldin k. A. Abdulhamid, FatmaKandemirli, Ibrahim M Ghayad*, Effect of Pickling and Activation Treatments on the Performance of Electroless Plating of Ni-B Coating on AZ31 Mg Alloy, *Chemistry and Materials Research*, 11 (5) (2019) 21-26.
39. Ahmed El-Tantawy, H. M. Yehia, Omayma El-kady, I. M. Ghayad Fabrication and Characterization of Ti-12Mo/ ZrO<sub>2</sub> Composites by Powder Metallurgy for Dental Applications, *Key Engineering Materials*, 6 (10) 2019.
40. Salah Eldin k. A. Abdulhamid, FatmaKandemirli, Ibrahim M Ghayad, Effect of Al<sub>2</sub>O<sub>3</sub> and WO<sub>3</sub> Ceramic Additives on the Surface Morphology and Mechanical Properties of Electroless Nickel-Boron Composite Coatings Fabricated on AZ31 Magnesium Alloy, *Chemistry and Materials Research*, 11 (8) (2019) 30-33.
41. Gamal M. Rashed, Waleed A. Mohrez, AbdAllahM.Abd EL-Hamid, Ibrahim M. Ghayad, Corrosion Behavior of Super Austenitic Stainless Steel 904L Weldment in Sulfuric Acid Media for Leaching Application, *Key Engineering Materials*, 6 (10) (2019).
42. A. B. Abdel-Aziz, M. M. B. El-Sabbah, I. M. Ghayad, Adham A. El-Zomrawy, Electroless Plating Lead and Lead-Tin on Copper Using an Eco-Friendly Plating Bath, *Materials Sciences and Applications*, Vol.11 No.12, December 2020.
43. A El-Tantawy, IM Ghayad, AS Eldesoky, O El-kady, Effect of zirconia content and sintering temperature on the density, microstructure, corrosion, and biocompatibility of the Ti–12Mo matrix for dental applications, HM Yehia, *Journal of Materials Research and Technology* 9 (4), (2020) 8820-8833.
44. A El-Tantawy, OA El Kady, HM Yehia, IM Ghayad, Effect of Nano ZrO<sub>2</sub> Additions on the Mechanical Properties of Ti-12Mo Composite by Powder Metallurgy Route, *Key Engineering Materials* 835 (2020) 367-373.
45. MHA Gadelhaq, AS Hamada, IM Ghayad, A Järvenpää, M Jaskari, Effect of Grain structure on the mechanical and corrosion behavior of advanced medium Mn stainless TWIP steel, *Materials Science Forum*, 998 (2020) 15-20
46. N Nassif, I Ghayad, Z Abdel Hamid, Direct Ethanol Fuel Cells as a Renewable Source of Energy, *Egyptian Journal of Chemistry* 64 (5) (2021) 2723-2729.



47. MA Hassan, IM Ghayad, ASA Mohamed, AE El-Nikhaily, OA Elkady, Improvement ductility and corrosion resistance of CoCrFeNi and AlCoCrFeNi HEAs by electroless copper technique, *Journal of Materials Research and Technology*, 13 (2021) 463-485.
48. AAF Hassan, IM Ghayad, M Maamoun, Z Abdel Hamid, FEZM El-Saeed, Preparation and Characterization of Ni-diamond Composite Coatings Using Sedimentation Co-deposition Technique Alternative to Conventional Electrodeposition Technique, *Egypt J Chem*, 64 (2) (2021) 1065-1073.
49. AE El-Tantawy, HM Yehia, O El-Kady, IM Ghayad, preparation and characterization of Ti-12mo/x Al<sub>2</sub>O<sub>3</sub> nano-composites for aerospace applications, *The Bulletin Tabbin Institute for Metallurgical Studies (TIMS)*, 109 (1) (2021) 1-11.

### ***Local Journals***

1. I. M. Ghayad, Internal Cathodic Protection of Pipes Carrying Electrolytes, *Egypt. J. Chem.* 45, No. 2, pp. 273-281 (2002).
2. Ibrahim M. Ghayad, N. N. Girgis and Hassan H. El-Sentriecy, Corrosion Inhibition of Reinforcing Steel In Concrete, *Egypt. J. Chem.* 48, No. 2 pp. 141-154, 2005.
3. Ibrahim M. Ghayad, Enhancing Corrosion Resistance of Low Carbon Steel Using Laser Surface Treatment, *Bulletin of Tebbin Institute For Metallurgical Studies (TIMS)*, Vol. 85, January 2005.
4. S.M. Abd El Hallem, I. M. Ghayad, N. Nassif, M.A.Shoeib, M. A. Maamoun, H. Soliman, Surface Modification of Mg-3Zn-0.8Ca Alloy Using Dual Micro-Arc Oxidation (MAO) and Fluoridated Hydroxyapatite (FHA) Coatings, *Egypt Journal of Chemistry*, 57 (2) (2014) 97-108.
5. Ibrahim Mohamed Ghayad, Aida L Al Ansary, Zeinab A Abdel Aziz, Amany A Al Akhar, Recovery of Zinc From Zinc Dross Using Pyrometallurgical and Electrochemical Methods, Accepted for publication, *Egypt J chem.*, 62 (2) 373-384(2018).
6. N. Nassif, Z. Abdel Hamid, I. Ghayad, Yasser K. Abdel-Monem, Amal E. Ismail, Evaluation of Ag as an Active Direct Ethanol Fuel Cell Electrode Catalyst Prepared by Pulsed Current Electrodeposition Technique, *Egypt. J. Chem.* 62 (9) (2019) 1591.
7. I. M. Ghayad, AAF Hassan, Maamoun Abdel Hamid, Z Abdel Hamid, Fatma El-Zahraa M El-Saeed; Ahmed Abdel-Khalek, "Preparation and Characterization of Ni-diamond Composite Coatings Using Sedimentation Co-deposition Technique Alternative to Conventional Electrodeposition Technique", *Egypt. J. Chem.*, Vol. 64, No. 2 pp. 1065 - 1073 (2021), DOI: 10.21608/ejchem.2020.33984.2722.

### ***International Conferences (in proceedings)***

1. A.A. Abdul-Azim, N. N. Girgis and I.M.Ghayad, Corrosion Behavior of Candidate Alloys in Paper Machine White Water, 13<sup>th</sup> International Corrosion Congress (ICC), 25-29 Nov. 1996, Melbourne, Australia, Proceeding: Vol. 1, paper no. 70.
2. FawziaFahim, Nabil Nassif and Ibrahim Ghayad, The Design of Polymers for Deposit and Corrosion Control in Cooling Water (II), 8<sup>th</sup> Middle East Corrosion Conference (8 MECC), May 18-20, 1998, Bahrain.
3. Ibrahim M. Ghayad, Erick Gies, James Crocker and H. Marcus, Spot Joining of Silicon Nitride Ceramics using Selective Area Laser Deposition Technique, Solid Free Form Fabrication Symposium, August 6-8 2001, TX, USA.

4. O. A. Fouad, I. M. Ghayad, T. Ohmori, M. Osawa; "Electro-Reduction of NO<sub>3</sub><sup>-</sup> to NO<sub>2</sub><sup>-</sup> and NH<sub>3</sub> Under Potentially Deposited Cu-Au and Bulk Cu Electrodes in Acid Medium: Electro-assisted method for water purification", US-Egypt workshop on Materials Recycling and Clean Technology, 5-11 June, 2004, CMRDI, Cairo, Egypt.
5. Ibrahim M. Ghayad, W. Ghanem, N.N. Girgiss and A. S. Hamada, Effect of Cold Working on the Aging and Corrosion Behavior of Fe-Al-Mn Stainless Steel, EuroCorr 2004, 06-P-020, Nice, France, 12-16 Sept. 2004.
6. W. A. Ghanem and I.M.Ghayad, Hot corrosion of plasma sprayed coated steel in the presence of sulphate-chloride mixture, EuroCorr 2006, 24-28 Sept., Netherlands.
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11. Zeinab A. Abdel Aziz and Ibrahim M. Ghayad, Applied research in the area of advanced industrial coatings applications, 40th Annual Conference of the Association of Egyptian-American Scholars "Scientific Challenges & Emerging technology Transfer in Modern Egypt", December 28<sup>th</sup> – 30<sup>th</sup>, 2013, Alexandria, Egypt.
12. Ibrahim M Ghayad, Z. Abdel Hamid, N. Gomaa, A CASE STUDY: CORROSION FAILURE OF TUBE HEAT EXCHANGER, 3<sup>rd</sup> International Conference Organized by the Egyptian Corrosion Society (ECS), 8-11 Dec 2014, Luxor, Egypt.
13. Ibrahim M Ghayad, Z. Abdel Hamid, N. Gomaa, Corrosion Failure Analysis: Case Studies, 4<sup>th</sup> International Conference Organized by the Egyptian Corrosion Society (ECS), Dec 2015, Hurgada, Egypt.
14. I. M. Ghayad, Failure Analysis of A Process Gas Cooler In A Fertilizers Co.5<sup>th</sup> International Conference on Corrosion Mitigation and Surface Protection Technologies 12-15 December, 2016, Luxor, Egypt.
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18. FakihaHaikal, YahiaBadr, MaamounAbdelHamid, Ibrahim M Ghayad , Direct Current Electrophoretic Deposition of Hydroxyapatite Composite, Coating on Mg-0.8wt.%Ca-3%wt.%Zn alloy", International conference on materials science and engineering, , Egyptian Japanese University for science and Technology, 11-13 March 2018, Alexandria - Egypt.

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20. International workshop on Engineering Nanomaterials for advanced applications, CMRDI, Nov. 19, 2019-11-19
21. K. M. Hafez, I M Ghayad,. 7<sup>th</sup>International Conference Organized by Egyptian Corrosion Society (ECS) on Corrosion Mitigation and Surface Protection Technologies , 10-12 Dec 2019, Alex, Egypt.

### **Synergistic Activities**

Member of the Egyptian Corrosion Society

Member of the Association of the Egyptian American Scholars

### **Reviewer of the following international journals:**

- Industrial & Engineering Chemistry Research published by the American Chemical Society
- Journal of sulfur chemistry Published By: Taylor & Francis
- Metallurgical and materials transaction
- Surface and interface analysis
- Surface and Coating Technology
- Journal of Materials Engineering & Performance
- Journal of the Brazilian Chemical Society
- Journal of Metallurgical Engineering (ME)
- Materials Letter
- Material Science, Indian Journal
- Egypt Journal of Chemistry