CURRICULUM VITAE

Name : **Mohamed Ismail Awad**;

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Date of Birth : 19 / 2 / 1970

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Present

Chemistry Department, Faculty of Applied Sciences, Umm Al- Qura University, Makkah Al-Mukarramah,13401, Saudi Arabia Kingdom.

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Scientific Carrier:

1- B.Sc. (Chemistry Major), with honor, Cairo University 1991.
2- M.Sc. (Physical Chemistry), Cairo University 1999.
3- Ph.D. (Physical Chemistry), Tokyo Institute of Technology (TIT), Japan 1999-2002.
4- Post-Doc at Tokyo Institute of Technology (TIT0, Japan. 2003-2005
5- JSPS Post-Doc fellow, Tokyo Institute of Technology (TIT0, Japan. 2005-2007
6- Post-Doc at Tokyo Institute of Technology (TIT0, Japan. 2009-2010

Academic Awards

Tejima Memorial Award for Invention, Tejima Seiichi Commemorative Foundation, 2004. Japan.

RESEARCH INTERESTS

Nanotechnology

Electroanalysis: Chemical sensors, Potentiometry, Amperometry.

Fuel Cells: Developments of efficient cathodes

Industrial Electrochemistry: Electrogeneration of potent oxidants.

Porous Electrodes, Environmental and Electrochemical Applications.

Corrosion of steel and Corrosion Inhibitors.

Organization Membership:

1- Electrochemical Society Inc, USA.
2- Japan Society for the promotion of Science, Japan.

Awards

Tejima Memorial Award for Invention, Tejima Seiichi Commemorative Foundation, 2004. Japan.

تحكيم الأبحاث العلمية:

Peer Reviewer for the Following Journals:

- **Journal of the Electrochemical Society.**
- **Electrochimica Acta.**
- **Journal of Applied Electrochemistry.**
- **Journal of Applied Polymer.**
- **Analytica Chimica Acta**
- **Talanta**
- **Chemical Engineering Communications**
- **Arabian Journal of Chemistry**

تحكيم المشاريع البحثية:

تـحكيـم عدة مشـاريـع

Patents

1. Simultaneous and selective detection method for peroxyacetic acid and hydrogen peroxide,

   T. Ohsaka, M. I. Awad and C. Harnode,

Japanese Patent, No. 3504939, 2003.

2. A method of simultaneous fractional analysis of Peracetic acid and hydrogen peroxide,

T. Ohsaka, M. I. Awad and C. Harnode,

International patent, US 2005/0084978 A1.

Books (Chapters in Books)

Nanoscience

3. **Electrocatalytic Applications of Maganese oxide, tantalum Oxide and Titanium oxide nanostructures modified electrodes" to be published in the forthcoming book series on**

Metal Oxide Nanostructures and Their Applications 2008 by

American Scientific Publishers (ASP) based in USA.

M. S. El-Deab, M. I. Awad, T. Ohsaka.

Electroanalysis

4. Peroxycitric Acid: A Potential Derivative of Citric Acid

In: Citric Acid: Synthesis, Properties and Applications

ISBN: 978-1-62100-353-3
Editors: Dominic A. Vargas and Josephine V. Medina

Md. M. Islam, B. N. Ferdousi, M. I. Awad, T. Ohsaka

Reviews

Electroanalysis

5. **Recent Progress in Electrochemistry and Electroanalysis of Oxidants used as Disinfectants,**

M. I. Awad, T. Ohsaka,

Research Trends, 11 (2006) 71-92.

6. **Recent Progress in Electrochemistry of planar and reticulated vitreous carbon: fundamentals and applications,**

M. M. Saleh, M. I. Awad, T. Ohsaka

submitted to Research Trends.

List of Publications

I. Nanoscience

7. **Enhanced glucose electrooxidation at a binary catalyst of manganese and nickel oxides nanoparticles modified glassy carbon electrode**

S. M. El-Refaei, M. M.Saleh, M. I. Awad,

J. Power Sources, *223* (*2013*) *125-128.*

8. **Electrocatalytic glucose oxidation at binary catalyst of nickel and manganese oxides nanoparticles modified glassy carbon electrode: optimization of the loading level and order of deposition**

S. M. El-Refaei, **M. I. Awad**, B. E. El-Anadouli, M. M.Saleh

Electrochimica Acta, *92 (2013) 460-467*.

9. **An Electrocatalytic Oxygen Reduction by Copper Nanoparticles Modified Au(100)-Rich Polycrystalline Gold Electrode in 0.5 M KOH**

M. I. Awad, T. Ohsaka

J. Power Sources, *2*26 (2013) 306.

10. **Electrocatalysis by Nanoparticles: Optimization of the Loading Level and Operating pH for the Oxygen Evolution at Crystallographically Oriented Manganese Oxide Nanorods Modified Electrodes**,

Ahmad M. Mohammad, **M. I. Awad**, M. S. El-Deab, T. Okajima and T. Ohsaka.

Electrochimica Acta, *53 (2008) 4351-4358*.

11. **Enhanced water electrolysis: Electrocatalytic generation of oxygen gas at manganese oxide nanorods modified electrodes,** Mohamed S. El-Deab, **Mohamed I. Awad**,

Ahmad M. Mohammad, Takeo Ohsaka,

Electrochem. Comm., 9 (2007) 2082.

12. **Tailor-Designed Platinum Nanoparticles Electrodeposited onto Gold Electrodes: Catalytic Activity for Oxygen Reduction**,

M. I. Awad, M. S. El-Deab, T. Ohsaka,

J. Electrochem. Soc, 154 (2007) Selected in a Virtual Journal of Nanoscale Science and Technology.

II. Electrocatalysis & Nanoscience

13. **Electrocatalytic Evolution of Oxygen Gas at Cobalt Oxide Nanoparticles Modified Electrodes**

I. M. Sadiek, A. M. Mohammad, M. E. El-Shakre, **M. I. Awad**, M. S. El-Deab, B.E. El-Anadouli

Int. J. Electrochem. Sci., 7 (2012) 3350.

14. **Oxygen Reduction on Rotating Porous Cylinder of Modified Reticulated Vitreous Carbon**,

M. I. Awad, M. M. Saleh and T. Ohsaka,

J. Solid State Electrochem., 12 (2008) 251-258.

15. **Characterization of oxidized reticulated vitreous carbon electrode for oxygen reduction reaction in acid solutions.**

M. Saleh; **M. I. Awad,** T. Okajima, K. Suga, T. Ohsaka,

Electrochim. Acta (2007), 52 (9), 3095-3104.

16. **Characterization of Oxidized Reticulated Vitreous Carbon for Generation of H_2O_2 from Flowing Acid Solutions**,

M. M. Saleh, **M. I. Awad**, T. Ohsaka,

ECS Transaction, 3 (28), 76 (2007).

Fuel Cells

17. **A comparative study of ORR at the Pt electrode in ammonium ion-contaminated H_2SO_4 and $HClO_4$ solutions,**
    M. R. Rahman, M. I. Awad, F. Kitamura, T. Okajima, T. Ohsaka.
    J. Power Sources, 220 (2012) 65-73.

18. **Impact of SO_2 poisoning of platinum nanoparticles modified glassy carbon electrode on oxygen reduction.**
    M.I. Awad, M.M. Saleh, T. Ohsaka.
    Journal of Power Sources 196 (2011) 3722.

19. **Temperature effect on the recovery of SO_2-poisoned GC/nano-Pt electrode towards oxygen reduction.**
    M. Abdullah, M. M. Saleh, M. I. Awad, T. Okajima, F. Kitamura, T. Ohsaka
    J. Solid State Electrochem., 14 (2010) 1727.

20. **Hydrogen spillover phenomenon: Enhanced reversible hydrogen adsorption/desorption at Ta_2O_5-coated Pt electrode in acidic media.**
    S. Sata, M. I. Awad, M. S. El-Deab, T. Okajima, T. Ohsaka.
    Electrochim. Acta, 55 (2010) 3528.

21. **Sulphur Dioxide Poisoning and Recovery of Platinum Nanoparticles: Effect of Particle Size**
    M. M. Saleh, **M. I. Awad**, F. Kitamura, T. Ohsaka
    Int. J. Electrochem. Sci., 7 (2012) 12004.

III. Electrode Kinetics

22. **Electroreduction of Peroxyacetic Acid at Gold Electrode in Aqueous Media.**
    M. I. Awad; Denggerile, Ao; Ohsaka, Takeo.
    J. Electrochem. Society 151 (2004) E358-E363.

23. **Effect of electrode materials on the kinetics of the electro-reduction of peroxyacetic acid.**
    D. Ao; **M. I. Awad**; T. Okajima, C. Harnood, T. Ohsaka,

Electrochimica Acta 49 (2004) 4135-4141.

IV. Industrial Electrochemistry

24. Electrochemical generation of ozone at PbO_2-loaded platinum screens.

M. I. Awad, M. M. Saleh.

J Solid State Electrochem. 14 (2010) 1877.

25. Development of spin-coated Si/TiO_x/Pt/TiO_x electrodes for the electrochemical ozone production.

M. Mohammad, K. Kitsuka, A. M. Abdullah, M. I. Awad, Okajima, K. Kaneda, M. Ikematsu, and T. Ohsaka.

Appl. Surf. Sci., 255 (2009) 8458 .

26. Superior electrocatalysis of spin–coated titanium oxide electrodes for the electrochemical ozone production,

A. M. Mohammad, Kenta Kitsuka, Kazuhiro Kaneda, **M. I. Awad**, A. M. Abdullah, M. Ikematsu, and T. Ohsaka,

Chemistry Letters, 36 (2007) 1046.

27. Ozone electrogeneration on Pt-loaded reticulated vitreous carbon using flooded and flow-through assembly.

M. I. Awad; Saleh, Mahmoud M.; Ohsaka, Takeo.

J. Electrochem. Soc. 153 (2006) D207-D212.

28. Ozone electrogeneration at a high current efficiency using a tantalum oxide-platinum composite electrode.

M. I. Awad; S. Sata, K. Kaneda, M. Ikematsu, T. Okajima, T. Ohsaka,

Electrochem. Commun. 8 (2006) 1263-1269

29. **Mathematical modeling of gas evolution from flowing electrolytes on stable porous anodes of finite matrix phase conductivity.**

M. Saleh, **M. I. Awad**; F. Kitamura, T. Ohsaka,

Electrochim. Acta 51 (2006) 6331-6337.

VI. Electroanalytical

30. **Selective Electronalysis of Peracetic Acid in the Presence of a Large Excess of H_2O_2 at Au(111)-like Gold Electrode.**

M. I. Awad.

Analytica Chimica Acta, 730 (2012) 60.

31. **Electroanalysis of a Ternary Disinfectant Mixture**

M. I. Awad, A. M. Mohammad, T. Ohsaka

Analytical Letters, 45 (2012) 1506.

32. **Preparation and potentiometric measurement of peroxycitric acid,**

F. B. Nadira, Md. I. Mominul, M. I. Awad, T. Okajima, T. Ohsaka, Electrochemistry, 74 (2006) 606.

33. **Simultaneous electroanalysis of hypochlorite and H_2O_2: Use of I^-/I_2 as a probing potential buffer.**

M. I. Awad; Sata, Shunsuke; Ohsaka, Takeo.

Electroanalysis (2005), 17(9), 769-775.

34. **Simultaneous electroanalysis of peroxone.**

M. I. Awad; Ohsaka, Takeo.

Chemical Sensors (2005), 21 (Suppl. A), 94-96.

35. **Electroanalysis of peroxone.**

M. I. Awad; Ohsaka, Takeo.

Electrochem. Commun. 6 (2004) 1135-1140.

36. **Bioelectrochemistry of molecular oxygen and reactive oxygen species 123.electroanalysis of PAA and $_{H2O2}$: use of iodide/iodine couple as a probing potential buffer.**

M. I. Awad; T. Ohsaka,

Chemical Sensors (2004), 20 (Suppl. A), 154-156.

37. **Simultaneous Potentiometric Determination of Peracetic Acid and Hydrogen Peroxide.**

M. I. Awad; Oritani, Tadato; Ohsaka, Takeo.

Analytical Chemistry (2003), 75(11), 2688-2693.

38. **Potentiometric analysis of peroxyacetic acid in the presence of a large excess of hydrogen peroxide.**

M. I. Awad; T. Ohsaka,

J. Electroanal. Chem. 544 (2003) 35-40.

39. **Electroanalysis of peracetic acid in the presence of a large excess of hydrogen peroxide**.

M. I. Awad; C. Harnoode, T. Ohsaka,

Chemical Sensors (2001), 17(Suppl. A), 112-114.

40. **Electroanalysis of peracetic acid in the presence of a large excess of hydrogen peroxide.**

M. I. Awad; Harnoode, Chokto; Tokuda, Koichi; Ohsaka, Takeo.

Analytical Letters (2001), 34(7), 1215-1221.

41. Simultaneous electroanalysis of peroxyacetic acid and hydrogen peroxide.

M. I. Awad; Harnoode, Chokto; Tokuda, Koichi; Ohsaka, Takeo.

Analytical Chemistry (2001), 73(8), 1839-1843.

42. Simultaneous Electroanalysis of Peracetic Acid and Hydrogen Peroxide Using Square-Wave Voltammetry,

M. I. Awad; Harnoode, Chokto; Tokuda, Koichi; Ohsaka, Takeo,

Electrochemistry, 68 (2000) 895-897

43. Simultaneous Spectrophotometric Determination of Ozone and Hydrogen Peroxide

K. Kitsuka, A. M. Mohammad, M. I. Awad, K. Kaneda, M. Ikematsu, M. Iseki,. K. Mushiake, T. Ohsaka

Chemistry letters 36 (2007) 1396-1397.

VII. Chemical Kinetics

44. Kinetic studies on the oxidation of iodide by peroxyacetic acid.

M. I. Awad; Oritani, Tadato; Ohsaka, Takeo.

Inorganica Chimica Acta (2003), 344 253-256.

VIII. Corrosion Inhibitors

45. Inhibitory action of quaternary ammonium bromide on mild steel and synergistic effect with other halide ions in 0.5 M H_2SO_4

A. Khamis, Mahmoud M. Saleh, Mohamed I. Awad, B.E. El-Anadouli

Journal of Advanced Research, 2014, ***In Press*****.**

46. **Enhanced 4-amino-5-methyl-4H-1,2,4-triazole-3-thiol Inhibition of Corrosion of Mild Steel in 0.5 M H_2SO_4 by Cu(II)**
Omar A. Hazazi, Ahmed Fawzy, Mohamed R. Shaaban, Mohamed I. Awad
Int. J. Electrochem. Sci., 9 (2014)1378-1389.

47. **Enhancing the inhibition action of cationic surfactant with sodium halides for mild steel in 0.5 M H_2SO_4**
Corrosion Science, *74* (*2013*) *83-91*.
A. Khamis, Mahmoud M. Saleh, Mohamed I. Awad, B.E. El-Anadouli

48. **Synergistic Inhibitor Effect of Cetylpyridinium Chloride and Other Halides on the Corrosion of Mild Steel in 0.5 M H_2SO_4**
A. Khamis, M. M. Saleh, **M. I. Awad**
Corrosion Science, 66 (2013) 343.

49. **The counter ion influence of cationic surfactant and role of chloride ion synergism on corrosion inhibition of mild steel in acidic media,**
A. Khamis, M. Saleh and M. I. Awad

Int. J. Electrochem. Sci., 7 **(2012)** 10487 - 10500.

50. **Eco friendly corrosion inhibitors: Inhibitive action of quinine for corrosion of low carbon steel in 1 m HCl.**

M. I. Awad.

J Appl. Electrochem. 36 (2006) 1163-1168.

Presentations

51. **Quantum Mechanical Interpretation of the Inhibition Efficiency of Selenourea, Thiourea, Guanidine and Urea for the Corrosion of Low-Carbon Steel in Acid Medium**,

M. I. Awad, B. E. El-Anadouli and B. G. Ateya,

2nd International Conference on Electrochemistry and Its Applications,

Feb., 1999, South Valley university, Luxor, Egypt.

52. **Electroanalysis of Peracetic Acid in the Presence of Hydrogen Peroxide**,
M. I. Awad, and T. Ohsaka,

International Symposium on Organic Reactions, Oct. 26-28, 2000, Tokyo, Japan

53. **Electroanalysis of Peracetic Acid Using Gold Electrodes**,
M. I. Awad, C. Harnode, T. Okajima and T. Ohsaka, 2001
Autumn Meeting of the Electrochemical Society of Japan (Sept. 20-21, 2001) Tokyo, Japan.

54. **Electroanalysis of peracetic acid in the presence of a large excess of hydrogen peroxide**.
M. I. Awad; Harnoode, Chokto; Ohsaka, Takeo,
Spring Meeting of the Electrochemical Society of Japan (March, 2001) Kyoto, Japan.

55. **Simultaneous electroanalysis of peroxyacetic acid and hydrogen peroxide**. **M. I. Awad**; Harnoode, Chokto; Ohsaka, Takeo Spring Meeting of the Electrochemical Society of Japan (March, 2001) Kyoto, Japan.

56. **Electroanalysis of Peroxyacetic Acid and H_2O_2: Use of I^-/I_2 as a Probing Potential Buffer**,
M. I. Awad and T. Ohsaka,
Spring Meeting of the Electrochemical Society of Japan (March 24-26, 2004, Yokohama, Japan).

57. **High Selective Potentiometric Method for the Simultaneous Analysis of Peroxyacetic Acid and Hydrogen Peroxide**,

M. I. Awad and T. Ohsaka,

International Biannual Conference on Chemistry, Chem.03, March 1-4, 2004, Cairo, Egypt.

58. **Electrode kinetics of electroreduction of peracetic acid at gold electrode in aqueous media**,

M. I. Awad; Denggerile, Ao; Ohsaka, Takeo,

Electrochemical Soc. Meeting, Hawaii, 2004, Page 2312.

59. **A Novel electroanalytical method for the analysis of disinfectants**,

M. I. Awad; Ohsaka, Takeo,

The 5th Asian confereance of Electrochemistry (ACEC 2005, May 10-12), China.

60. **Electrochemical Generation of Ozone Using PtO_x-Ta_2O_5/Ti Electrodes**,

S. Sata, **M. I. Awad**, Y. Koizumi, K. Kaneda, T. Rakuma, T. Okajima, T. Ohsaka,

the 72nd Meeting of the Electrochemical Society of Japan, Kumamoto University, Apr. 1-3 (2005).

61. **Simultaneous electroanalysis of peroxone**.

M. I. Awad; Ohsaka, Takeo.

The 72nd Meeting of the Electrochemical Society of Japan, Kumamoto University, Apr. 1-3 (2005).

62. **Bioelectrochemistry of Molecular Oxygen and Reactive Oxygen Species 135. Electrochemical Generation of Ozone Using PtO_x-Ta_2O_5 Electrodes,**

S. Sata, **M. I. Awad**, K. Kaneda, M. Ikematsu, T. Okajima, T. Ohsaka, 2005

Autumn Meeting of the Electrochemical Society of Japan, Chiba University, Sep. 8-9 (2005).

63. A simultaneous electroanalysis of disinfectants for water treatments,

Ohsaka, T., **M. I. Awad** , Sata, S., Okajima, T.,

208th of the Meeting of the Electrochemical Soc. October 10-12 (2005), Volume MA 2005-02, Page 2077.

64. A Novel approach of the simultaneous electroanalysis of disinfectants for water treatment,

Ohsaka, T., **M. I. Awad** , Sata, S., Okajima, T.

56th Annual meeting of the international Society of the Electrochemistry, Korea (Busan) Sept. 25-30 (2005).

65. Electrochemical Ozone Production at PtO_x-Ta_2O_5/Ti Electrodes, S. Sata, Y. Koizumi, K. Kaneda, T. Rakuma, **M. I. Awad**, T. Okajima, T. Ohsaka, , the 56th Annual Meeting of the International Society of Electrochemistry, Busan, Sep. 25-30 (2005).

66. Electrochemical Generation of Ozone Using PtO_x-Ta_2O_5/Ti Electrodes

S. Sata, **M. I. Awad**, Y. Koizumi, K. Kaneda, T. Rakuma, T. Okajima, T. Ohsaka, the 72nd Meeting of the Electrochemical Society of Japan, Kumamoto University, Apr. 1-3 (2005).

67. Ozone Electrogeneration on Pt-Loaded Reticulated Vitreous Carbon Using Flow-Through Assembly

M. I. Awad, Mahmoud Saleh, Takeo Ohsaka,

Spring Meeting of the Electrochemical Society of Japan (March, 2006, Kyoto, Japan).

68. **Mathematical modeling of gas evolution from flowing electrolytes on stable porous anodes of finite matrix phase conductivity.**

Saleh, Mahmoud M.; **M. I. Awad**; Kitamura, Fusao; Ohsaka, Takeo,

Spring Meeting of the Electrochemical Society of Japan (March, 2006, Kyoto, Japan).

69. **Characterization of Oxidized Reticulated Vitreous Carbon for Generation of H_2O_2 from Flowing Acid Solutions**, M. M. Saleh, **M. I. Awad**, T. Ohsaka, Meet. Abstr. - Electrochem. Soc. **602**, 1298 (2006) 210th Meeting of The Electrochemical Society, October 29, 2006 - November 3, 2006, Cancun, Mexico.

67. **Ozone Electrogeneration on Pt-Loaded Reticulated Vitreous Carbon Using Flow-Through Assembly**

M. I. Awad, M. Saleh, T. Ohsaka,

Meet. Abstr. - Electrochem. Soc, 602, 1785 (2006), 210th Meeting of The Electrochemical Society, October 29, 2006 - November 3, 2006, Cancun, Mexico.

68. **Tailor-Designed Platinum Nanoparticles Electrodeposited onto Gold Electrodes: Catalytic Activity for Oxygen Reduction, M. I. Awad, M. S. El-Deab, T. Ohsak, China May 2007.**

69. **Electrochemical ozone generation by a metal oxide electrode**, K. Kitsuka, A. M. Mohammad, **M. I. Awad**, T. Ohsaka, 17th.Annual Conference on Ozone Science & Technology, June 14th and 15th, 2007, Nigitatsu Kikan, Japan.

70. **Bioelectrochemistry of Molecular Oxygen and Reactive Oxygen Species 151. Electrocatalysis by Design: Electroreduction of Oxygen at Well-tailored Pt Nanoparticles electrodeposited onto Au(111)-like Gold Electrodes, M. I. Awad,**

M. S. El-Deab, T. Ohsaka, Spring Meeting of the Electrochemical Society of Japan (March, 2007, Tokyo, Japan.

71. **O_2 Reduction at Binary Catalysts of Pt Nanoparticles Selectively Electrodeposited onto Gold(111) Facets of Polycrystalline Gold Electrode**. **M. I. Awad, M. S. El-Deab, T. Ohsak, China May 2007. , Meet. Abstr. - Electrochem. Soc. (2010) 210th Meeting of The Electrochemical Society, October 29, 2007 - Oct 3, 2006, Washington, USA.**

72. **Dual catalyst system: Electrocatalysis of oxygen reduction at tailor-designed platinum nanoparticles modified gold electrode, M. I. Awad, M. S. El-Deab, T. Ohsak, Chem 05 international conference, Egypt, March 2008.**

73. **Applications of Nanoparticles in Electrochemistry,**
M. I. Awad, M. S. El-Deab, A. M. Mohammad and T. Ohsaka,
International Conference on Nanotechnology : Opportunities and Challenges" Geddah, KSA, page 368, May 2008.

74. **Hydrogen Spillover-reverse Spillover Phenomena at Ta2O5-coated Pt Electrodes in Acidic Media,**
T. Ohsaka, S. Sata, M. I. Awad, M. S. El-Deab, F. Kitamura, and T. Okajima, 214th ECS Meeting - Honolulu, HI , October 12 - October 17, 2008

75. **Electrocatalytic oxygen evolution at manganese oxide nanoparticles modified electrodes,**
M. I. Awad, A. M. Mohamed, M. S. El-Deab, T. Ohsaka,
Riyadh, 2009.

76. **Towards realizing Silicon Nanodevices: Manufacturing of Metal Nanowire Contacts to Silicon Nanowires**

A.M. Mohammad, M. I Awad, A. M. Abdullah, S. E. Mohney, B. E. El-Anadouli,

Riyadh, 2009.