

**LIST OF PUBLICATIONS**

**Dr. Gumaa A.M. El-Nagar**, list date Jan. 25, 20

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**A Peer-reviewed scientific articles**

1. Muench, F.; **El-Nagar, G. A.**; Tichter, T.; Zintler, A.; Kunz, U.; Molina-Luna, L.; Sikolenko, V.; Pasquini, C.; Lauermann, I.; Roth, C. Conformal Solution Deposition of Pt-Pd Titania Nanocomposite Coatings for Light-Assisted Formic Acid Electro-Oxidation. *ACS Applied Materials & Interfaces*, 2019, 11, 43081-43092, [Doi: 10.1021/acsami.9b12783](#).
2. Sarhan, R. M.; **El-Nagar, G. A.**; Abouserie, A.; Roth, C. Silver–Iron Hierarchical Microflowers for Highly Efficient H<sub>2</sub>O<sub>2</sub> Nonenzymatic Amperometric Detection. *ACS Sustainable Chemistry & Engineering*, 2019, 7 (4), 4335-4342, [Doi: 10.1021/acssuschemeng.8b06182](#).
3. Schneider, J.; Bulczak, E.; **El-Nagar, G. A.**; Gebhard, M.; Kubella, P.; Schnucklake, M.; Fetyan, A.; Derr, I.; Roth, C. Degradation Phenomena of Bismuth-Modified Felt Electrodes in VRFB Studied by Electrochemical Impedance Spectroscopy. *Batteries*, 2019, 5 (1), 16, [Doi: 10.3390/batteries5010016](#).
4. Kottakkat, T.; Klingan, K.; Jiang, S.; Jovanov, Z. P.; Davies, V. H.; **El-Nagar, G. A. M.**; Dau, H.; Roth, C. Electrodeposited AgCu Foam Catalysts for Enhanced Reduction of CO<sub>2</sub> to CO. *ACS Applied Materials & Interfaces*, 2019, 11, 14734-14744, [Doi: 10.1021/acsami.8b22071](#).
5. **El-Nagar, G. A.**; Delikaya, Ö.; Lauermann, I.; Roth, C. Platinum Nanostructure Tailoring for Fuel Cell Applications Using Levitated Water Droplets as Green Chemical Reactors. *ACS Applied Materials & Interfaces*, 2019, 11, 22398-22407, [Doi: 10.1021/acsami.9b05156](#).
6. Ahmed, A. M.; Sayed, S. Y.; **El-Nagar, G. A.**; Morsi, W. M.; El-Deab, M. S.; El-Anadouli, B. E. Enhanced electrocatalytic oxidation of glucose at graphene nanosheets – Metal oxides nanoparticles modified GC electrodes. *Journal of Electroanalytical Chemistry*, 2019, 835, 313-323. [Doi: 10.1016/j.jelechem.2019.01.048](#).
7. **El-Nagar, G. A.**; Muench, F.; Roth, C. Tailored Dendritic Platinum Nanostructures as a Robust and Efficient Direct Formic Acid Fuel Cell Anode. *New Journal of Chemistry*, 2019, 43, 4100-4105. [Doi: 10.1039/C8NJ06172F](#).
8. Fetyan, A.; Schneider, J.; Schnucklake, M.; **El-Nagar, G. A.**; Banerjee, R.; Bevilacqua, N.; Zeis, R.; Roth, C. Comparison of Electrospun Carbon–Carbon Composite and Commercial Felt for Their Activity and Electrolyte Utilization in Vanadium Redox Flow Batteries. *ChemElectroChem*, 2018, 5, 1-7. [Doi: 10.1002/celec.201801128](#).
9. Fetyan, A.; **El-Nagar, G. A.**; Lauermann, I.; Schnucklake, M.; Schneider, J.; Roth, C., Detrimental role of hydrogen evolution and its temperature-dependent impact on the performance of vanadium redox flow batteries. *Journal of Energy Chemistry*, 2018, article in press. [Doi: 10.1016/j.jechem.2018.06.010](#).
10. Sayed, D.M.; El-Nagar, G.A.; Sayed, S.Y.; El-Anadouli, B.E.; El-Deab, M.S., Activation/deactivation behavior of nano-NiOx based anodes towards the OER: Influence of temperature. *Electrochimica Acta*, 2018, 276, 176-183. [Doi: 10.1016/j.electacta.2018.04.175](#)
11. **El-Nagar, G. A.**; Lauermann, I.; Sarhan, R.; Roth, C., Hierarchically structured iron-doped silver (Ag–Fe) lotus flowers for an efficient oxygen reduction reaction. *Nanoscale* 2018, 10, 7304-7310. [Doi: 10.1039/C8NR00020D](#).
12. Fetyan, A.; **El-Nagar, G.A.**; Derr, I.; Kubella, P.; Dau, H.; Roth, C., A neodymium oxide nanoparticle-doped carbon felt as promising electrode for vanadium redox flow batteries. *Electrochimica Acta* 2018, 268, 59-65. [Doi: 10.1016/j.electacta.2018.02.104](#).
13. Sayed, D. M.; **El-Nagar, G. A.**; Sayed, S. Y.; El-Anadouli, B. E.; El-Deab, M. S., Activation/deactivation behavior of nano-NiOx based anodes towards the OER: Influence of temperature. *Electrochimica Acta* 2018, 276, 176-183. [Doi: 10.1016/j.electacta.2018.04.175](#).
14. **El-Nagar, G. A.**; Hassan, M.; Lauermann, I.; Roth, C., Efficient Direct Formic Acid Fuel Cells (DFAFCs) Anode Derived from Seafood waste: Migration Mechanism. *Scientific Reports* 2017, 7, 17818-17826. |

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Doi: [10.1038/s41598-017-17978-8](https://doi.org/10.1038/s41598-017-17978-8).

15. **El-Nagar, G. A.**; Sarhan, R. M.; Abouserie, A.; Bargheer, M.; Roth, C., Efficient 3D-Silver Flower-like Microstructures for Non-Enzymatic Hydrogen Peroxide (H<sub>2</sub>O<sub>2</sub>) Detection. *Scientific Reports* 2017, 7, 12181-12189. Doi: [10.1038/s41598-017-11965-9](https://doi.org/10.1038/s41598-017-11965-9).
16. **El-Nagar, G. A.**; Derr, I.; Kottakkat, T.; Roth, C., Auspicious Metal-Doped-Cu<sub>2</sub>O/Cu Dendrite (M=Ni, Co, Fe) Catalysts for Direct Alkaline Fuel Cells: Effect of Dopants. *ECS Transactions* 2017, 80, 1013-1022. DOI: [10.1149/08008.1013ecst](https://doi.org/10.1149/08008.1013ecst).
17. **El-Nagar, G. A.**; Roth, C., Enhanced electrooxidation of glucose at nano-chitosan-NiOOH modified GC electrode: fuel blends and hydrocarbon impurities. *Physical Chemistry Chemical Physics* 2017, 19, 2537-2548. Doi: [10.1039/C6CP08360A](https://doi.org/10.1039/C6CP08360A)
18. **El-Nagar, G. A.**; Mohammad, A. M.; El-Deab, M. S.; El-Anadouli, B. E., Propitious Dendritic Cu<sub>2</sub>O–Pt Nanostructured Anodes for Direct Formic Acid Fuel Cells. *ACS Applied Materials & Interfaces* 2017, 9, 19766–19772. Doi: [10.1021/acsami.7b01565](https://doi.org/10.1021/acsami.7b01565)
19. **El-Nagar, G. A.**; Hassan, M. A.; Fetyan, A.; Kayarkatte, M. K.; Lauermann, I.; Roth, C., A promising N-doped carbon-metal oxide hybrid electrocatalyst derived from crustacean's shells: Oxygen reduction and oxygen evolution. *Applied Catalysis B: Environmental* 2017, 214, 137-147. Doi: [10.1016/j.apcatb.2017.05.030](https://doi.org/10.1016/j.apcatb.2017.05.030)
20. **El-Nagar, G. A.**; Derr, I.; Fetyan, A.; Roth, C., One-pot synthesis of a high performance chitosan-nickel oxyhydroxide nanocomposite for glucose fuel cell and electro-sensing applications. *Applied Catalysis B: Environmental* 2017, 204, 185-199. Doi: [10.1016/j.apcatb.2016.11.031](https://doi.org/10.1016/j.apcatb.2016.11.031)
21. **El-Nagar, G. A.**; Dawood, K. M.; El-Deab, M. S.; Al-Andouli, B. E., Efficient direct formic acid fuel cell (DFAFC) anode of nano-sized palladium complex: High durability and activity origin. *Applied Catalysis B: Environmental* 2017, 213, 118-126. doi: [10.1016/j.apcatb.2017.05.006](https://doi.org/10.1016/j.apcatb.2017.05.006)
22. **El-Nagar, G. A.**; Darweesh, A. F.; Sadiq, I., A novel nano-palladium complex anode for formic acid electro-oxidation. *Electrochimica Acta* 2016, 215, 334-338. Doi: [10.1016/j.electacta.2016.08.127](https://doi.org/10.1016/j.electacta.2016.08.127)
23. **El-Nagar, G. A.**; Roth, C., Impurity-Induced Electrocatalysis: Unpredicted Enhancement Effect of Ammonia Impurity towards Formic Acid Electro-Oxidation. *ChemistrySelect* 2016, 1, 5706-5711. Doi: [10.1002/slct.201601149](https://doi.org/10.1002/slct.201601149)
24. **El-Nagar, G. A.**; Mohammad, A. M.; El-Deab, M. S.; El-Anadouli, B. E., Novel fuel blends facilitating the electro-oxidation of formic acid at a nano-Pt/GC electrode. *RSC Advances* 2016, 6, 29099-29105. Doi: [10.1039/C6RA00118A](https://doi.org/10.1039/C6RA00118A)
25. Mohammad, A. M.; **El-Nagar, G. A.**; Al-Akraa, I. M.; El-Deab, M. S.; El-Anadouli, B. E., Towards improving the catalytic activity and stability of platinum-based anodes in direct formic acid fuel cells. *International Journal of Hydrogen Energy* 2015, 40, 7808-7816. Doi: [10.1016/j.ijhydene.2014.11.108](https://doi.org/10.1016/j.ijhydene.2014.11.108)
26. **El-Nagar, G. A.**; El-Deab, M. S.; Mohammad, A. M.; El-Anadouli, B. E., Promoting Effect of Hydrocarbon Impurities on the Electro-Oxidation of Formic Acid at Pt Nanoparticles Modified GC Electrodes. *Electrochimica Acta* 2015, 180, 268-279. Doi: [10.1016/j.electacta.2015.08.119](https://doi.org/10.1016/j.electacta.2015.08.119)
27. El-Deab, M. S.; **El-Nagar, G. A.**; Mohammad, A. M.; El-Anadouli, B. E., Fuel blends: Enhanced electro-oxidation of formic acid in its blend with methanol at platinum nanoparticles modified glassy carbon electrodes. *Journal of Power Sources* 2015, 286, 504-509. Doi: [10.1016/j.jpowsour.2015.04.004](https://doi.org/10.1016/j.jpowsour.2015.04.004)
28. **El-Nagar, G. A.**; Mohammad, A. M.; Mohamed, M.; El-Anadouli, B. E., Electro-oxidation of formic acid at binary platinum and gold nanoparticle-modified electrodes: effect of chloride ions. *International Journal of Electrochemical Science* 2014, 9, 4523-4534.
29. **El-Nagar, G. A.**; Mohammad, A. M.; El-Deab, M. S.; Ohsaka, T.; El-Anadouli, B. E., Acrylonitrile-contamination induced enhancement of formic acid electro-oxidation at platinum nanoparticles modified glassy carbon electrodes. *Journal of Power Sources* 2014, 265, 57-61. Doi: [10.1016/j.jpowsour.2014.04.116](https://doi.org/10.1016/j.jpowsour.2014.04.116)
30. **El-Nagar, G. A.**; Mohammad, A. M., Enhanced electrocatalytic activity and stability of platinum, gold, and nickel oxide nanoparticles-based ternary catalyst for formic acid electro-oxidation. *International Journal of Hydrogen Energy* 2014, 39, 11955-11962. Doi: [10.1016/j.ijhydene.2014.06.028](https://doi.org/10.1016/j.ijhydene.2014.06.028)
31. El-Deab, M. S.; Mohammad, A. M.; **El-Nagar, G. A.**; El-Anadouli, B. E., Impurities Contributing to Catalysis: Enhanced Electro-Oxidation of Formic Acid at Pt/GC Electrodes in the Presence of Vinyl Acetate. *The Journal of Physical Chemistry C* 2014, 118, 22457-22464. Doi: [10.1021/jp507240r](https://doi.org/10.1021/jp507240r)
32. **El-Nagar, G. A.**; Mohammad, A. M.; El-Deab, M. S.; El-Anadouli, B. E., Electrocatalysis by design:

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Enhanced electrooxidation of formic acid at platinum nanoparticles–nickel oxide nanoparticles binary catalysts. *Electrochimica Acta* 2013, 94, 62-71. Doi: [10.1016/j.electacta.2013.01.133](https://doi.org/10.1016/j.electacta.2013.01.133)

33. **El-Nagar, G. A.**; Mohammad, A. M.; El-Deab, M. S.; El-Anadouli, B. E., Facilitated Electro- Oxidation of Formic Acid at Nickel Oxide Nanoparticles Modified Electrodes. *Journal of the Electrochemical Society* 2012, 159, F249-F254. Doi: [10.1149/2.043207jes](https://doi.org/10.1149/2.043207jes)

### Scientific Book Chapters

34. El-Refaei, S. M., **El-Nagar, G. A.**, Mohammad, El-Anadouli, B. E. (2015): Electrooxidation of small organic molecules at PT-based electrodes modified with nickel oxide nanostructured. In: Progress in Clean Energy, I. Dincer et al (eds.), volume 1 analysis and modeling. Doi: [10.1007/978-3-319-16709-1\\_43](https://doi.org/10.1007/978-3-319-16709-1_43)
35. El-Refaei, S. M., **El-Nagar, G. A.**, Mohammad, El-Anadouli, B. E. (2015): Electro-Oxidation of Formic Acid, Glucose, and Methanol at Nickel Oxide Nanoparticle Modified Platinum Electrodes In: Progress in Clean Energy, I. Dincer et al (eds.), volume 1 analysis and modeling: pp 595-604. ISBN:978-3-319-16709-1. Doi: [10.1007/978-3-319-16709-1\\_43](https://doi.org/10.1007/978-3-319-16709-1_43)
36. **El-Nagar, G. A.**, Mohammad, A. M., El-Deab, M. S., El-Anadouli, B. E. (2015): Electrocatalysis of Formic Acid Electro-Oxidation at Platinum Nanoparticles Modified Surfaces with Nickel and Cobalt Oxides Nanostructures. In: Progress in Clean Energy, I. Dincer et al (eds.), volume 1 analysis and modeling: pp 577- 594. ISBN: 978-3-319-16709-1. Doi: [10.1007/978-3-319-16709-1\\_42](https://doi.org/10.1007/978-3-319-16709-1_42)
37. El-Refaei, S. M., **El-Nagar, G. A.**, Mohammad, A. M., El-Deab, M. S., El-Anadouli, B. E. (2014): Electrocatalytic Activity of NiOx Modified Electrodes towards Oxidation of Small Organic Molecules. In: 2<sup>nd</sup> international congress on Energy Efficiency and Energy Related Materials (ENEFM2014), Eds., A. Y. Oral et al (Springer International Publishing Switzerland 2015) Series title: springer proceeding in Energy: pp. 397- 403: ISBN: 978-3-319-16901-9. Doi: [10.1007/978-3-319-16901-9\\_48](https://doi.org/10.1007/978-3-319-16901-9_48).
38. **El-Nagar, G. A.**, Mohammad, A. M., El-Deab, M. S., El-Anadouli, B. E. (2014): The Origin of Electrocatalytic Activity Of Gold Nanoparticles Modified Pt-Based Surfaces Towards Formic Acid Oxidation. In: 2<sup>nd</sup> international congress on Energy Efficiency and Energy Related Materials (ENEFM2014), Eds., A. Y. Oral et al (Springer International Publishing Switzerland 2015) Series title: springer proceeding in Energy: pp 379- 387: ISBN: 978-3-319-16901-9. Doi: [10.1007/978-3-319-16901-9\\_46](https://doi.org/10.1007/978-3-319-16901-9_46).
39. **El-Nagar, G. A.**, Mohammad, A. M., El-Deab, M. S., El-Anadouli, B. E. (2014): The Origin of Electrocatalytic Activity Of Gold Nanoparticles Modified Pt-Based Surfaces Towards Formic Acid Oxidation. In: 2<sup>nd</sup> international congress on Energy Efficiency and Energy Related Materials (ENEFM2014), Eds., A. Y. Oral et al (Springer International Publishing Switzerland 2015) Series title: springer proceeding in Energy. Doi: [10.1007/978-3-319-16901-9\\_46](https://doi.org/10.1007/978-3-319-16901-9_46).

### B Non-refereed scientific articles

1. Mohammad, A. M., **El-Nagar, G. A.**, Al-Akraa, I. M., El-Deab, M. S., El-Anadouli, B. E. (2014): A stable Nickel Oxide Nanoparticles Ternary-based Anodic Catalyst for the Direct Formic Acid Fuel Cells. International Conference on Industry Academia Collaboration (IAC2014) (paper no. 46), Fairmont Hotel, Cairo, Egypt, March 3-5, 2014.  
<https://www.academia.edu/19835172>