



## Xiaojun CHEN

Senior Research Scientist

+65 6824 7168

xjchen@nbl.a-star.edu.sg

Senior Research Scientist, NanoBio Lab, Singapore, 2018-present

R&D Head (Acting), Lite-on Biomedical R&D Centre, Singapore, 2016-2017

R&D Manager, Lite-on Biomedical R&D Centre, Singapore, 2016-2016

Managing Product Engineer, Nitto Denko Asia Technical Centre Pte Ltd, Singapore, 2012-2016

Ph.D. in Materials Science, Nanyang Technological University, Singapore, 2003

M.S. in Chemical Engineering, Zhejiang University, China, 1997

B.M. in Electrochemical Engineering, Harbin Institute of Technology, China, 1994

## Publications

1. A. A. AbdelHamid, X. Yang, J. Yang, X. Chen, J. Y. Ying, "Graphene-Wrapped Nickel Sulfide Nanoprisms with Improved Performance for Li-ion Battery Anodes and Supercapacitors," *Nano Energy*, 26 (2016) 425-437
2. M. H. Wong, Z. X. Zhang, X. F. Yang, X. J. Chen, J. Y. Ying, "One-Pot *In Situ* Redox Synthesis of Hexacyanoferrate/Conductive Polymer Hybrids as Lithium-Ion Battery Cathode," *Chem. Commun.*, 51 (2015) 13674
3. J. Yang, L. L. Chng, X. Yang, X. Chen, J. Y. Ying, "Multiply-Twinned Intermetallic AuCu Pentagonal Nanorods," *Chem. Commun.*, 50[9] (2014) 1141-114
4. J. Yang, X. Chen, X. Yang, J. Y. Ying, "Stabilization and Compressive Strain Effect of AuCu Core on Pt Shell for Oxygen Reduction Reaction," *Energy & Environmental Science*, 5 (2012) 8976-8981
5. X. Chen, A. Ying, Z. Q. Gao, "Highly Sensitive and Selective Colorimetric Genotyping of Single-Nucleotide Polymorphisms Based on Enzyme-Amplified Ligation on Magnetic Beads," *Biosensors and Bioelectronics*, 36 (2012) 89-94
6. X. J. Chen, Y. B. Zu, H. Xie, A. M. Kemas, Z. Q. Gao, "Coordination of Mercury(II) to Gold Nanoparticle Associated Nitrotriazole Towards Sensitive Colorimetric Detection of Mercuric Ion with Tunable Dynamic Range," *Analyst*, 136 (2011) 1690-1696
7. Y. Peng, X. Chen, G. Yi, Z. Gao, "Mechanism of the Oxidation of Organic Dyes in the Presence of Nanoceria," *Chemical Communications*, 47 (2011) 2916-2918
8. Y. F. Peng, X. J. Chen, Z. Q. Gao, "Determination of Trace Amounts of Mercury Using Hierarchically Nanostructured Europium Oxide," *Talanta*, 82 (2010) 1924-1928

9. X. J. Chen, S. Roy, Y. F. Peng, Z. Q. Gao, "Electrical Sensor Array For Polymerase Chain Reaction-Free Messenger RNA Expression Profiling," *Analytical Chemistry*, 82 (2010) 5958-5964
10. X. J. Chen, H. Xie, Z. Y. Seow, Z. Q. Gao, "An Ultrasensitive DNA Biosensor Based on Enzyme-Catalyzed Deposition of Cupric Hexacyanoferrate Nanoparticle," *Biosensors and Bioelectronics*, 25 (2010) 1420-1426
11. S. Roy, X. J. Chen, M. H. Li, Y. F. Peng, F. Anariba, Z. Q. Gao, "Mass-Produced Nanogap Sensor Arrays for Ultrasensitive Detection of DNA," *Journal of the American Chemical Society*, 131 (2009) 12211-12217
12. X. J. Chen, L. G. Yu, K. A. Khor, G. Sundararajan, "The Effect of Boron-Pack Refreshment on the Boriding of Mild Steel by the Spark Plasma Sintering (SPS) Process," *Surface and Coatings Technology*, 202 (2008) 2830-2836
13. X. J. Chen, A. C. West, D. M. Cropek, S. Banta, "Detection of the Superoxide Radical Anion Using Various Alkanethiol Monolayers and Immobilized Cytochrome *c*," *Analytical Chemistry*, 80 (2008) 9622-9629
14. X. J. Chen, Q. L. Liu, S. H. Chan, N. P. Brandon, K. A. Khor, "Sulfur-Tolerance and Hydrocarbon-Stability of  $\text{La}_{0.75}\text{Sr}_{0.25}\text{Cr}_{0.5}\text{Mn}_{0.5}\text{O}_3/\text{Gd}_{0.2}\text{Ce}_{0.8}\text{O}_{1.9}$  Composite Anode under Anodic Polarization," *Journal of the Electrochemical Society*, 154 (2007) B1206-B1210
15. Z. W. Zhao, X. J. Chen, B. K. Tay, J. S. Chen, K. A. Khor, "A Novel Amperometric Biosensor Based On ZnO:Co Nanoclusters for Biosensing Glucose," *Biosensors and Bioelectronics*, 23 (2007) 135-139
16. X. J. Chen, X. B. Yan, K. A. Khor, B. K. Tay, "Multilayer Assembly of Positively Charged Polyelectrolyte and Negatively Charged Glucose Oxidase on a 3D Nafion Network For Detecting Glucose," *Biosensors and Bioelectronics*, 22 (2007) 3256-3260
17. X. B. Yan, X. J. Chen, B. K. Tay, K. A. Khor, "Transparent and Flexible Glucose Biosensor Via Layer-By-Layer Assembly of Multi-Wall Carbon Nanotubes and Glucose Oxidase," *Electrochemistry Communications*, 9 (2007) 1269-1275
18. X. J. Chen, Q. L. Liu, S. H. Chan, N. P. Brandon, K. A. Khor, "High Performance Cathode-Supported SOFC with Perovskite Anode Operating in Weakly Humidified Hydrogen and Methane," *Electrochemistry Communications*, 9 (2007) 767-772
19. X. J. Chen, Q. L. Liu, K. A. Khor, S. H. Chan, "High Performance  $(\text{La,Sr})(\text{Cr,Mn})\text{O}_3/(\text{Gd,Ce})\text{O}_{2-\delta}$  Composite Anode for Direct Oxidation of Methane," *Journal of Power Sources*, 165 (2007) 34-40
20. S. P. Jiang, X. J. Chen, S. H. Chan, J. T. Kwok, K. A. Khor, " $(\text{La}_{0.75}\text{Sr}_{0.25})(\text{Cr}_{0.5}\text{Mn}_{0.5})\text{O}_3/\text{YSZ}$  Composite Anodes for Methane Oxidation Reaction in Solid Oxide Fuel Cells," *Solid State Ionics*, 177 (2006) 149-157
21. S. P. Jiang, X. J. Chen, S. H. Chan, J. T. Kwok, "GDC-Impregnated  $\text{La}_{0.75}\text{Sr}_{0.2}\text{Cr}_{0.5}\text{Mn}_{0.5}\text{O}_3$  Anodes for Direct Utilization of Methane in Solid Oxide Fuel Cells," *Journal of the Electrochemical Society*, 153 (2006) A850-A856
22. Q. L. Liu, K. A. Khor, S. H. Chan, X. J. Chen, "Anode-Supported Solid Oxide Fuel Cell with Ytria-Stabilized Zirconia/Gadolinia-Doped Ceria Bilayer Electrolyte Prepared by Wet Ceramic Co-Sintering Process," *Journal of Power Sources*, 162 (2006) 1036-1042

23. X. J. Chen, K. A. Khor, S. H. Chan, "Reducing Effect of Contaminants in Solid Oxide Fuel Cell (SOFC) Electrolyte by Spark Plasma Sintering (SPS)," *Advances in Applied Ceramics*, 104 (2005) 117-122
24. X. J. Chen, K. A. Khor, S. H. Chan, "Suppression of Carbon Deposition at CeO<sub>2</sub>-Modified Ni/YSZ Anodes in Weakly Humidified CH<sub>4</sub> at 850°C," *Electrochemical and Solid-State Letters*, 8 (2005) A79-A82
25. L. G. Yu, X. J. Chen, K. A. Khor, G. Sundararajan, "FeB/Fe<sub>2</sub>B Phase Transformation During SPS Pack-Boriding: Boride Layer Growth Kinetics," *Acta Materialia*, 53 (2005) 2361-2368
26. X. J. Chen, S. H. Chan, K. A. Khor, "Simulation of Composite Cathode in Solid Oxide Fuel Cells," *Electrochimica Acta*, 49 (2004) 1851-1861
27. X. J. Chen, K. A. Khor, S. H. Chan, "Overcoming the Effect of Contaminant in Solid Oxide Fuel Cell (SOFC) Electrolyte: Spark Plasma Sintering (SPS) of 0.5 wt. % Silica-Doped Yttria-Stabilized Zirconia (YSZ)," *Materials Science and Engineering A*, 374 (2004) 64-71
28. X. J. Chen, S. H. Chan, K. A. Khor, "Defect Chemistry Of La<sub>x</sub>Sr<sub>1-x</sub>MnO<sub>3</sub> Under Cathodic Polarization," *Electrochemical and Solid-State Letters*, 7 (2004) A144-147
29. K. A. Khor, X. J. Chen, S. H. Chan, L. G. Yu, "Modification of Plasma Sprayed 20 wt % Yttria Stabilized Zirconia Electrolyte by Spark Plasma Sintering (SPS) Technique," *Materials Science and Engineering A*, 336 (2004) 120-126
30. X. J. Chen, K. A. Khor, S. H. Chan, "Electrochemical Behavior of LSM Electrode under Cathodic and Anodic Polarization," *Solid State Ionics*, 167 (2004) 379-387
31. S. H. Chan, X. J. Chen, K. A. Khor, "Cathode Micro-Model for Solid Oxide Fuel Cell," *Journal of the Electrochemical Society*, 151 (2004) A164-A172
32. X. J. Chen, S. H. Chan, K. A. Khor, "Cyclic Voltammetry of (La,Sr)MnO<sub>3</sub> Electrode On YSZ Substrate," *Solid State Ionics*, 164 (2003) 17-25
33. X. J. Chen, K. A. Khor, S. H. Chan, "Identification of Oxygen Reduction Processes at YSZ/LSM Interface," *Journal of Power Sources*, 123 (2003) 17-25
34. K. A. Khor, L. G. Yu, S. H. Chan, X. J. Chen, "Densification of Plasma Sprayed YSZ Electrolytes by Spark Plasma Sintering (SPS)," *Journal of the European Ceramic Society*, 23 (2003) 1855-1863
35. S. H. Chan, X. J. Chen, K. A. Khor, "Bi-Layer Electrolyte Model for Solid Oxide Fuel Cells," *Solid State Ionics*, 158 (2003) 29-43
36. X. J. Chen, K. A. Khor, S. H. Chan, "Preparation Yttria-Stabilized Zirconia Electrolyte by Spark-Plasma Sintering," *Materials Science and Engineering A*, 341 (2003) 43-48
37. S. H. Chan, X. J. Chen, K. A. Khor, "An Electrolyte Model for Ceramic Oxygen Generator and Solid Oxide Fuel Cell," *Journal of Power Source*, 111 (2002) 320-328
38. X. J. Chen, K. A. Khor, S. H. Chan, "Influence of Microstructure on the Ionic Conductivity of Yttria-Stabilized Zirconia Electrolyte," *Materials Science and Engineering A*, 335 (2002) 246-252

39. S. H. Chan, X. J. Chen, K. A. Khor, "Reliability and Accuracy of Measured Overpotential in a Three-Electrode Fuel Cell System," *Journal of Applied Electrochemistry*, 31 (2001) 1163-1170

## Patents

---

1. J. Y. Ying, G. Xu, R. Deng, X. Chen, "Apparatus for a Diaper, a System, a Diaper and a Method of Manufacturing an Electrode," US Patent Granted in October 2018
2. X. Chen, Y. Wang, P. S. Ho, X. E. Yeo "Urinalysis Device and Dry Reagent for Quantitative Urinalysis," WO/2015/130225
3. B. S. Bholra, J. Xu, K. Takayama, X. Chen, Y. Wang, P. S. Ho, X. E. Yeo "Urinalysis Instrument Design for Quantitative Urinalysis," WO/2015/130233