

Curriculum V

Name: GANESAN ELUMALAI

Designation: Project Scientist (Middle Level)

Research Experience: 3 years



AREA OF SPECIAL INTEREST

- Proton Exchange Membrane Fuel Cell (PEMFC)
- Membrane Electrode Assembly (MEA)
- Hydrogen Production
- Electrochemistry
- Materials Synthesis
- Analytical Chemistry

SCHOLASTIC BACKGROUND

- **Ph.D., (Chemistry):** Oct, 2010 – Sep, 2014.
Hokkaido University, Sapporo, Japan.
- **M.Sc., (Analytical Chemistry):** 2007-2009.
Vellore Institute of Technology University, Vellore, Tamil Nadu, India.
- **B.Sc., Chemistry:** 2004-2007.
Thiruvalluvar University, Vellore, Tamil Nadu, India.

RESEARCH EXPOSURE

- **Post-Doctoral Researcher** at National Institute for Materials Science (NIMS), Tsukuba, Japan
Duration: Oct 2014 to Sep 2017.
- **NIMS Junior Researcher** at National Institute for Material Sciences (NIMS), Tsukuba, Japan, as a joined program with Hokkaido University.
Duration: From Oct 2010 to Sep 2014.

PUBLICATIONS

1. “*An efficient electrocatalyst for oxygen reduction to water - boron nitride nanosheets decorated with small gold nanoparticles (~ 5 nm) of narrow size distribution on gold substrate*”
Authors: **Ganesan Elumalai**, Hidenori Noguchi, Hung Cuong Dinh and Kohei Uosaki*, **J. Electroanal. Chem.**, (2017), doi.org/10.1016/j.jelechem.2017.09.033.
2. “*Highly Efficient Electrochemical Hydrogen Evolution Reaction at Insulating Boron Nitride Nanosheet on Inert Gold Substrate*”
Authors: Kohei Uosaki*, **Ganesan Elumalai**, Hung Cuong Dinh, Andrey Lyalin, Tetsuya Taketsugu, and Hidenori Noguchi, **Scientific Reports**, Vol. 6 (2016), pp. 32217. **DOI:** 10.1038/srep32217

3. “*Gold nanoparticle decoration of insulating boron nitride nanosheet on inert gold electrode toward an efficient electrocatalyst for the reduction of oxygen to water*”
 Authors: **Ganesan Elumalai**, Hidenori Noguchi, Andrey Lyalin, Tetsuya Taketsugu and Kohei Uosaki*, **Electrochem. Commun.**, Vol. 66 (2016), pp. 53-57. DOI: 10.1016/j.elecom.2016.02.021.
4. “*Boron Nitride Nanosheet on Gold as an Electrocatalyst for Oxygen Reduction Reaction: Theoretical Suggestion and Experimental Proof*”
 Authors: Kohei Uosaki*, **Ganesan Elumalai**, Hidenori Noguchi, Takuya Masuda, Andrey Lyalin, Akira Nakayama, and Tetsuya Taketsugu, **J. Am. Chem. Soc.**, Vol. 136 (2014), pp.6542. DOI: 10.1021/ja500393g.
5. “*Electrocatalytic activity of various types of h-BN for the oxygen reduction reaction*”
 Authors: **Ganesan Elumalai**, Hidenori Noguchi, and Kohei Uosaki*, **Phys. Chem. Chem. Phys.**, Vol. 16 (2014), pp. 13755. DOI: 10.1039/c4cp00402g.

AWARDS

1. “**Rising Researcher Lecture award**” from the surface science society of Japan for the poster presentation of “Highly efficient electrocatalysis for oxygen reduction reaction using boron nitride nanosheets I-Au nanoclusters decorated BNNS” presented at the “Joint symposium of the Surface Science Society of Japan and the Vacuum Society of Japan”, 1-3 December 2015, held at Tsukuba, Japan.
2. GREEN Research Assistant (RA) award for the “**outstanding performance with the spirit of innovation**” during the period of NIMS junior researcher in Global Research Center for Environment and Energy based on Nanomaterials Science (GREEN), NIMS, 2014.

RESEARCH PAPER PRESENTATED IN CONFERENCES

1. “Mono-dispersed gold nano-particles decorated Boron Nitride Nano-sheets as efficient electrocatalyst for oxygen reduction reaction” presented at The 68th Meeting on Colloid and Surface Chemistry, Sep 6-8, 2017, held at Kobe, Japan (**Poster**). Authors: **G. Elumalai**, H. Noguchi, D.H. Cuong, & K. Uosaki*
2. “Boron Nitride hybridized gold as an efficient electrocatalyst for fuel cell applications” presented at the “36th Joint symposium of the Surface Science Society of Japan and the Vacuum Society of Japan”, Nov 29 to Dec 1, 2016, held at Nagoya, Japan (**Poster**). Authors: **G. Elumalai**, D.H. Cuong, H. Noguchi, and K. Uosaki*
3. “Towards a four Electron Oxygen Reduction Reaction Route to Water on Boron Nitride modified Gold” presented at The 67th Divisional meeting on Colloid and Interface Chemistry, Sep 22-24, 2016, held at Asahikawa, Japan (**Oral**). Authors: **G. Elumalai**, H. Noguchi, and K. Uosaki*
4. “Towards an efficient electrocatalyst for the reduction of oxygen to water – Insulating Boron Nitride nanosheet decorated with Gold nanoparticles on inert gold electrode” presented at International symposium on Electrocatalysis: A key of sustainable society, Sep 11-14, 2016, held at shonan Village Center, Kanagawa, Japan (**Oral**). Authors: **G. Elumalai**, D.H. Cuong, H. Noguchi, A. Lyalin, T. Takestugu and K. Uosaki*
5. “Electrocatalytic Reduction of Oxygen at Au nanoclusters decorated with inert Boron Nitride nanosheets” presented at “the 13th GREEN symposium”, June 22, 2016, held at Tsukuba, Japan (**Poster**). Authors: **G. Elumalai**, H. Noguchi, and K. Uosaki*
6. “*Highly efficient electrocatalysis for oxygen reduction reaction using boron nitride nanosheets I- Au nanoclusters decorated BNNS*” presented at the “35th Joint symposium of the Surface Science Society of Japan and the Vacuum Society of Japan”, December 2015, held at Tsukuba, Japan (**Poster**). Authors: **G. Elumalai**, D.H. Cuong, H. Noguchi, and K. Uosaki*
7. “*Oxygen Reduction Reaction at various types of Boron Nitride modified on Gold*” presented at “MANA-RSC Symposium: Materials for Energy Generation and Storage”, October, 2015, held at Tsukuba, Japan (**Poster**). Authors: **G. Elumalai**, D.H. Cuong, H. Noguchi, and K. Uosaki*
8. “*Electrocatalytic Reduction of Oxygen at Various Types of Boron Nitride on Gold*”, presented at “7th

- international and 34th Domestic symposium on surface science Japan”, November, 2014, held at Matsue, Japan **(Oral)**. Authors: **G. Elumalai**, H. Noguchi, T. Masuda, and K. Uosaki*
9. “*Electrocatalytic activity of various types of Boron Nitride for oxygen reduction reaction - theoretical and experimental investigations*”, presented at “65th annual meeting of the international society of Electrochemistry”, August-September, 2014, held at Lausanne, Switzerland **(Poster)**.
Authors: **G. Elumalai**, H. Noguchi, T. Masuda, A. Lyalin, A. Nakayama, T. Taketsugu, and K. Uosaki*
 10. “*Electrocatalytic Reduction of Oxygen on Au supported Boron Nitride Nano Sheets (BNNS)*”, presented at "High Vacuum surface science meeting", 2013, November, held at Tsukuba, Japan **(Oral)**.
Authors: **G. Elumalai**, H. Noguchi, T. Masuda, and K. Uosaki*
 11. “*Role of Boron Nitride (BN) thin films on Au electrode for oxygen reduction reaction (ORR)*” presented at 93rd Annual meeting on Japan Chemical Society on March 22nd -25th, 2013, held at Ritsumeikan University, Kyoto, Japan **(Oral)** Authors: **G. Elumalai**, H. Noguchi, T. Masuda and K. Uosaki*
 12. “*Effect of Boron Nitride (BN) support on Au towards oxygen reduction reaction (ORR)*” presented at 32nd Annual meeting on the Surface Science Society of Japan on Nov 2012, held at Sendai, Japan **(Poster)**. Authors: **G. Elumalai**, H. Noguchi, T. Masuda and K. Uosaki*
 13. “*Thorium Hexacyanoferrate modified carbon composite electrode for the Electrocatalytic oxidation and Amperometric determination of Hydrazine*”, presented at 46th Annual Convention of Chemists 2009 and International Conference on Recent Research Trends in Chemical Sciences (ICRRTCS-09) held at VIT University, Vellore, Tamil Nadu, India **(Oral)**. Authors: G. Elumalai and S. Senthilkumer*

Contact details

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