

**Personal Information**

Full name                   Vinoth Ramalingam  
Nationality                 Indian  
Date of Birth                17/04/1989  
Marital status              Married  
E-mail                       vino.phys@gmail.com

**Professional Experience**

Oct. 2017– May 2022     **Postdoctoral Fellow**  
KAUST Solar Center | Physical Science and Engineering Division  
King Abdullah University of Science and Technology (KAUST) | Saudi Arabia

From June 2022         **Energy for Future (E4F) Fellow**  
Department of Chemical and Process Engineering | University of Strathclyde, UK

**Education**

2012 – 2017               **Ph.D. in Physics**  
Department of Physics | SRM Institute of Science and Technology, India  
Thesis Title: Graphene Based Nanocomposites for Energy Conversion and Environmental Remediation Applications

2011 – 2012               **M.Phil. in Physics (Grade: Distinction with 87.5 %)**  
Department of Physics | Bharathidasan University, India

2009 – 2011               **M.Sc. in Physics (Grade: Distinction with 87 %)**  
Department of Physics | Bharathidasan University, India

2006 – 2009               **B.Sc. in Physics (Grade: Distinction with 87 %)**  
Department of Physics | Bharathidasan University, India

**Fellowships and Awards**

January 2022             **“Energy for Future (E4F) Fellowship Award”-Horizon 2020 MSCA COFUND Program 2022-2023 (Coordinated by Fundación Iberdrola España)**  
Department of Chemical and Process Engineering-University of Strathclyde, UK  
Imperial College London, UK (3 months secondment)  
Iberdrola España, Spain (3 months industrial secondment)

February 2017           **Best Poster Award** in CNG-NCNN'17 National Conference

2012 – 2016               **Research Fellow** in DST-SERB Fast Track Research Project Funded by Department of Science and Technology, **Govt. of India** (Funded Fellowship Rs. 9, 21,600/-)

Aug. 2016 – Sep. 2016   **Sakura Exchange Program in Science** administered by Japan Science and Technology Agency and visited Shizuoka University, Japan

June 2011                 **JOINT-CSIR-UGC-NET** examination for lectureship in Physics (*Prestigious award to gain an eligibility as an Assistant Professor for Government Universities in India*)

April 2011                University **3<sup>rd</sup> Rank Holder** in M.Sc. Physics (Among 138 colleges)

March 2014               **Best Oral Presentation Award** in NCHSM 2014 National Conference

## Research Experience and Training

My primary research interests are directed towards development of various nanomaterials and devices for important energy conversion applications including water splitting to clean hydrogen production, CO<sub>2</sub> reduction and N<sub>2</sub> reduction into value-added chemicals and fuels. During my Ph.D., I have worked extensively on the designing of graphene supported various nanocomposites for heterogeneous photo-catalysis (*ACS Appl. Energy Mater*, 2018, 1, 1913; *J. Mater. Chem. A*, 2017, 5, 384; *PCCP* 2016, 18, 5179; *Nanoscale*, 2015, 7, 7849). In my current Postdoctoral position at KAUST, my research work aimed to prepare highly efficient metal based catalysts, single atom catalysts and oxide derived metal-based catalyst for both electrochemical and photoelectrochemical water splitting, CO<sub>2</sub> reduction and N<sub>2</sub> fixation. For example, I have studied the metal-support interaction between single atomic Ruthenium and 2D MXene support for hydrogen evolution reaction (*Advanced Materials* 2019, 31, 1903841). In addition, recently I have developed gold nanoparticles decorated graphitic carbon nitride catalyst for N<sub>2</sub> fixation to ammonia synthesis with 65% Faradaic efficiency (*Advanced Materials* 2021, 33, 2100812). I have also involved in the collaborative research project with SABIC industry in which I have focused on the electrocatalytic water splitting to hydrogen production (*ACS Energy letters* 2019, 4, 2712–2718). Recently, I have completed two important projects on CO<sub>2</sub> reduction entitled “CO<sub>2</sub> reduction into formate using atomic bismuth nanosheets”, “Copper alloy catalyst for CO<sub>2</sub> reduction into long chain hydrocarbon products” which will be submitted to the journal soon. I have hands-on experience in various vacuum deposition tools such as ALD, PE-CVD, Sputter, and e-beam evaporator. I also have experience in wet chemical synthesis, thermal synthesis processes to prepare various nanomaterials, experience in electrochemistry, reactor design with flow cell technology, Gas chromatography analysis, and NMR.

## Patents

1. **Vinoth Ramalingam**, Hui-Chun Fu, Chun-Ho Lin and Jr-Hau He, Single Atom Catalyst Having a Two Dimensional Support Material, U.S. Patent (**Publication number: US-2022-011358-A1**).
2. Hui-Chun Fu, **Vinoth Ramalingam**, Purushothaman Varadhan and Jr-Hau He, Solar Cell with MXene Electrode, U.S. Patent (**Publication number: US-2022-0077329-A1**)
3. Karthik Peramaiya, **Vinoth Ramalingam** and Kuo-Wei Huang, Gold Decorated Porous Carbon Nitride Catalyst for Photoelectrochemical Nitrogen Reduction, U.S. Patent (**Application No. 63/231, 337**) (2021).

## Publications in Internationally Peer Reviewed Journals

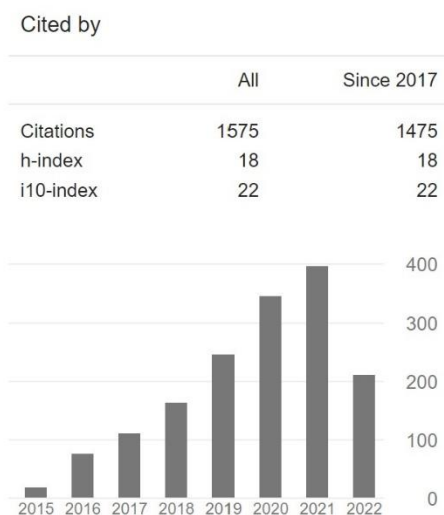
24. Merfat Alsabban, Mathan Kumar Easwaran, Wandu Wahyudi, Xiulin Yang, Karthik Peramaiah, **Vinoth Ramalingam**, Mohamed Hedhili, Xiaohe Miao, Udo Schwingenschlöggl, Lain-Jong Li, Vincent Tung, Kuo-Wei Huang\*, Unusual Activity of Rationally Designed Cobalt Phosphide/Oxide Heterostructure Composite for Hydrogen Production in Alkaline Medium, *ACS Nano*, 16, 3, 3906–3916 (2022).
23. Karthik Peramaiya<sup>#</sup>, **Vinoth Ramalingam**<sup>#</sup> (**# joint first author**), Merfat M. Alsabban, Vincent Tung, Kuo-Wei Huang\* and Jr-Hau He\*, Optically and Electrocatalytically Decoupled Si Photocathode with Porous Carbon Nitride Catalyst for Nitrogen Reduction Over 61.8% Faradaic Efficiency, *Advanced Materials*, 33, 2100812 (2021) (citations - 5)
22. Jing Wang, Tao Feng, Jiabin Chen, **Vinoth Ramalingam**, Zhongxiao Li, Daniel Manaye Kabtamu, Jr-Hau He\*, Xiaosheng Fang\*, Electrocatalytic Nitrate/Nitrite Reduction to Ammonia Synthesis using Metal Nanocatalysts and Bio-inspired Metalloenzymes, *Nano Energy*, 86, 106088 (2021) (citations - 10)
21. **Vinoth Ramalingam**, Purushothaman Varadhan, Hui-Chun Fu, Hyunho Kim, Daliang Zhang, Shuangming Chen, Li Song, Ding Ma, Yun Wang, Husam N. Alshareef\*, and Jr-Hau He\*, Heteroatom-Mediated Interactions between Ruthenium Single Atoms and an MXene Support for Efficient Hydrogen Evolution, *Advanced Materials*, 31, 1903841 (2019) (citations - 164)
20. Hui-Chun Fu<sup>#</sup>, **Vinoth Ramalingam**<sup>#</sup> (**# joint first author**), Hyunho Kim, Chun-Ho Lin, Xiaosheng Fang\*, Husam N. Alshareef\*, and Jr-Hau He\*, MXene Contacted Si Solar Cells with 11.5% Efficiency, *Advanced Energy Materials*, 9, 1900180 (2019) ([selected as a Frontispiece](#)) (citations - 117)
19. Abeer Alarawi<sup>#</sup>, **Vinoth Ramalingam**<sup>#</sup> (**# joint first author**) and Jr-Hau He\*, Recent Advances in Emerging Single Atom Confined Two-Dimensional Materials for Water Splitting Applications, *Materials Today Energy*, 11, 1-23 (2019) ([highly cited article](#)) (citations - 130)

18. M. A. Khan, Purushothaman Varadhan, **Vinoth Ramalingam**, Hicham Idriss\*, Jr-Hau He\*, Importance of O<sub>2</sub> Measurements During Photoelectrochemical Water-Splitting Reactions, **ACS Energy Letters**, 4, 2712–2718 (2019) ([highly read article](#), [collaborative project with SABIC industry](#)) (citations - 17)
17. Abeer Alarawi<sup>#</sup>, **Vinoth Ramalingam**<sup>#</sup> (<sup>#</sup> joint first author), Hui Chun Fu, Purushothaman Varadhan, Rusen Yang, Jr Hau-He\*, Enhanced Photoelectrochemical Hydrogen Production Efficiency of MoS<sub>2</sub>-Si Heterojunction, **Optics Express**, 27, A352-A363 (2019) (citations - 76)
16. N. Naresh, P. Karthik, **Vinoth Ramalingam**, C. Muthamizhchelvan, B. Neppolian, Tailoring Multi-metallic Nanotubes by Copper Nanowires with Platinum and Gold via Galvanic Replacement Route for the Efficient Methanol Oxidation Reaction, **Electrochimica Acta**, 282, 792-798 (2018) (citations - 19)
15. P. Karthik, **Vinoth Ramalingam**, Z. Peng, W. Choi, E. Balaraman, and B. Neppolian, π-π Interaction Between Metal-Organic Framework and Reduced Graphene Oxide for Visible Light Photocatalytic H<sub>2</sub> Production, **ACS Applied Energy Materials**, 1, 1913–1923 (2018) (citations - 92)
14. **Vinoth Ramalingam**, S. G. Babu, V. Bharti, S. V. Bhat, C. Muthamizhchelvan, P. C Ramamurthy, V. Gupta, C. Sharma, D. K Aswal, M. Navaneethan, Y. Hayakawa and B. Neppolian, Ruthenium based Metallopolymer Grafted Reduced Graphene Oxide as a New Hybrid Solar Light Harvester in Polymer Solar Cells, **Scientific Reports**, 7, 43133 (2017) (citations - 48)
13. **Vinoth Ramalingam**, P. Karthik, K. Devan, B. Neppolian and M. Ashokkumar, TiO<sub>2</sub>-NiO p-n Nanocomposite with Enhanced Sonophotocatalytic Activity under Diffused Sunlight, **Ultrasonics Sonochemistry**, 35, 655–663 (2017) (citations - 70)
12. **Vinoth Ramalingam**, S. Ganesh Babu, R. Ramachandran and B. Neppolian, Bismuth Oxyiodide Incorporated Reduced Graphene Oxide Nanocomposite Material as an Efficient Photocatalyst for Visible Light Assisted Degradation of Organic Pollutants, **Applied Surface Science**, 418, 163-170 (2017) (citations - 37)
11. P. Karthik, **Vinoth Ramalingam**, P. Selvam, E. Balaraman, M. Navaneethan, Y. Hayakawa, and B. Neppolian, Visible-Light Active Catechol-Metal Oxide Carbonaceous Polymeric Material for Enhanced Photocatalytic Activity, **Journal of Materials Chemistry A**, 5, 384-396 (2017) (citations - 54)
10. R. Rameshbabu, **Vinoth Ramalingam**, M. Navaneethan, Y. Hayakawa B. Neppolian, Fabrication of Cu<sub>2</sub>MoS<sub>4</sub> Hollow Nanotubes with rGO sheets for the Enhanced Visible Light Photocatalytic Performance, **CrystEngComm**, 19, 2475 – 2486 (2017) (citations - 26)
9. R. Rameshbabu, **Vinoth Ramalingam**, M. Navaneethan, S. Harish, Y. Hayakawa, B. Neppolian, Visible Light Responsive Cu<sub>2</sub>MoS<sub>4</sub> Nanosheets Incorporated Reduced Graphene Oxide for Efficient Degradation of Organic Pollutant, **Applied Surface Science**, 418, 128 – 137 (2017) (citations - 17)
8. P. Gokul, **Vinoth Ramalingam**, B. Neppolian, S. Anandhakumar, Binary Metal Oxide Nanoparticle Incorporated Composite Multilayer thin Films for Sono-photocatalytic Degradation of Organic Pollutants, **Applied Surface Science**, 418, 119 – 127 (2017) (citations - 12)
7. **Vinoth Ramalingam**, Indrajit Patil, A. Pandikumar, Bhalchandra Kakade, Huang Nay Ming, D. D. Dionysiou, and B. Neppolian, Synergistically Enhanced Electrocatalytic Performance of N-doped Graphene Quantum Dots Decorated Three-dimensional MoS<sub>2</sub>-Graphene Nanohybrid for Oxygen Reduction Reaction, **ACS Omega**, 1, 971–980 (2016) (citations - 50)
6. **Vinoth Ramalingam**, P. Karthik, C. Muthamizhchelvan, B. Neppolian and M. Ashokkumar, Carrier Separation and Charge Transport Characteristics of Reduced Graphene Oxide Supported Visible-Light Active Photocatalysts, **Physical Chemistry Chemical Physics**, 18, 5179-5191 (2016) (citations - 69)
5. **Vinoth Ramalingam**, SG Babu, D Bahnemann, B Neppolian, Nitrogen Doped Reduced Graphene Oxide Hybrid Metal Free Catalyst for Effective Reduction of 4-Nitrophenol, **Science of Advanced Materials**, 7, 1443-1449 (2015) (citations - 27)

4. S. Ganesh Babu, **Vinoth Ramalingam**, B. Neppolian, Dionysios D. Dionysiou and M. Ashokkumar, Diffused Sunlight Driven Highly Synergistic Pathway for Complete Mineralization of Organic Contaminants using Reduced Graphene Oxide Supported Photocatalyst, **Journal of Hazardous Materials**, 30, 83 – 92 (2015) (citations - 105)
3. S. Ganesh Babu, **Vinoth Ramalingam**, Surya Narayana, Detlef Bahnemann and B. Neppolian, Reduced Graphene Oxide Wrapped Cu<sub>2</sub>O Supported on C<sub>3</sub>N<sub>4</sub>: An Efficient Visible Light Responsive Semiconductor Photocatalyst, **APL Materials**, 3, 104415 (2015) (citations - 60)
2. P. Karthik, **Vinoth Ramalingam**, S. Ganesh Babu, M. Wen, T. Kamegawa, H. Yamashita and B. Neppolian, Synthesis of Highly Visible Light Active TiO<sub>2</sub>-2-Naphthol Surface Complex and its Application in Photocatalytic Chromium (VI) Reduction, **RSC Advances**, 5, 39752–39759 (2015) (citations - 37)
1. S. Ganesh Babu, **Vinoth Ramalingam**, D. Praveen Kumar, M. V. Shankar, H - L. Chou, K. Vinodgopal and B. Neppolian, Influence of Electron Storing, Transferring and Shuttling Assets of Reduced Graphene Oxide at the Interfacial Copper Doped TiO<sub>2</sub> p–n Heterojunction for Increased Hydrogen Production, **Nanoscale**, 7, 7849 – 7857 (2015) (citations - 152)

### CITATIONS (Google Scholar)

[https://scholar.google.com/citations?hl=en&user=eApCA4YAAAAJ&view\\_op=list\\_works&sortBy=pubdate](https://scholar.google.com/citations?hl=en&user=eApCA4YAAAAJ&view_op=list_works&sortBy=pubdate)



### Collaboration

- Collaborations with researchers from Griffith University, University of Wisconsin, Imperial College London, CityU-Hong Kong, USTC, SRM University, IISER-India.

### Editor and Reviewer

- **Review Editor** in Frontiers in Materials | Carbon-Based Materials journal (<https://loop.frontiersin.org/people/1231517/overview>)
- **Frequent reviewer** for the following international journals: *Journal of Catalysis*, *ACS Omega*, *International Journal of Hydrogen Energy*, *Ultrasonics Sonochemistry*, *Applied Surface Science*, *Advanced Powder Technology*, *Chemosphere and Environmental Research*

### Supervision and Mentoring Activities

Project: MoS<sub>2</sub> catalyst for water splitting, Student: Abeer Alarawi (Ph.D) KAUST

Project: MXene for energy conversion application, Student: Hui Chun Fu (Ph.D) KAUST

Project: Graphene supported semiconductor photocatalyst for hydrogen production, Student: Aakash Watts (B.Tech), SRM Institute of Science and Technology

Project: Graphene-TiO<sub>2</sub>/NiO sonophotocatalyst, Student: Devan (M.Sc), Madras Christian College

**Certificate Courses**

1. **Vinoth Ramalingam**, Certificate course on “Fundamentals of Project Management Course” at KAUST, 6 to 7 Dec. 2017.
2. **Vinoth Ramalingam**, Certificate course on “Materials Characterization Technique” at Indian Institute of Technology (IIT) Madras, India, 16-19 Dec. 2013.

**Presentations in International and Domestic Peer Reviewed Conferences**

1. **Vinoth Ramalingam** and Jr-Hau He, Contributed Talk at International Conference on Materials for Advanced Technologies (ICMAT), **MRS Singapore**, “MXene 2D for Energy Applications” Marina Bay Sands, Singapore, June 23 to 28, 2019.
2. **Vinoth Ramalingam** and Jr-Hau He, KAUST Catalysis Center Conference entitled “New Challenges in Heterogeneous Catalysis” January 29 to 31, 2018.
3. **Vinoth Ramalingam** and Neppolian Bernaurdshaw, Chennai Nanogathering 2017 National Conference on Nanomaterials & Nanobiotechnology (CNG-NCNN'17), University of Madras, Guindy Campus, 7-8 February 2017 (**Best Poster Award**)
4. **Vinoth Ramalingam** and Neppolian Bernaurdshaw, Fourth International Conference on Advanced Oxidation Processes, AOP-2016, BITS Campus, GOA, INDIA during 17-20 December 2016.
5. **Vinoth Ramalingam** and Neppolian Bernaurdshaw, National Conference on Science and Technology for Indigenous Development in India (NCST-IDI 2015) organized by Indian Science Congress-Chennai Chapter in Association with SRM University, Kattankulathur, Chennai during 26-18 November 2015 (**Best Poster Award**)
6. **Vinoth Ramalingam** and Neppolian Bernaurdshaw, International Conference on Advances in Energy Research-2015 (ICAER 2015) which was held at IIT Mumbai during 15-17 December 2015.
7. **Vinoth Ramalingam** and Neppolian Bernaurdshaw, International Conference on Nanoscience and Nanotechnology (ICONN-2015), SRM University, Kattankulathur, Chennai, India, 4-6 February 2015.
8. **Vinoth Ramalingam** and Neppolian Bernaurdshaw, National Conference on Hierarchically Structured Materials (NCHSM 2014), SRM University, Ramapuram Campus, Chennai, 24-25 March 2014 (**Best Oral Presentation Award**).
9. **Vinoth Ramalingam**, “One week Workshop on Sustainable Energy Conversion and Storage Devices” organized by SRM Research Institute, SRM University, Kattankulathur, Chennai, 2-8 September 2013.

**Outreach Activities**

- 14 Aug. 2018
- Frequent presenter for KAUST Solar Centre Peer Led Seminar
  - Handled our lab group webpage (regularly posting contents such as news, publications and group activities)
  - Chairperson for KAUST Solar Centre Peer Led Seminar