

## Appendix

### *List of Publications*

1. **Chutia, B.**, Patowary, S., Misra, A., Rao, K. N., and Bharali, P. Morphology effect of  $\text{Co}_3\text{O}_4$  nanooctahedron in boosting oxygen reduction and oxygen evolution reactions. *Energy & Fuels*, 36(22): 13863–13872, 2022.
2. **Chutia, B.** and Bharali, P. Oxygen deficient interfacial effect in  $\text{CeO}_2$ -modified  $\text{Fe}_2\text{O}_3/\text{C}$  for oxygen reduction reaction in alkaline electrolyte. *Catalysis Communications*, 164:106432, 2022.
3. **Chutia, B.**, Hussain, N., Puzari, P., Jampaiah, D., Bhargava, S.K., Matus, E.V., Ismagilov, I.Z., Kerzhentsev, M. and Bharali, P. Unraveling the role of  $\text{CeO}_2$  in stabilization of multivalent Mn species on  $\alpha\text{-MnO}_2/\text{Mn}_3\text{O}_4/\text{CeO}_2/\text{C}$  surface for enhanced electrocatalysis. *Energy & Fuels*, 35(13):10756-10769, 2021.
4. Patowary, S., Chetry, R., Goswami, C., **Chutia, B.** and Bharali, P. Oxygen reduction reaction catalysed by supported nanoparticles: Advancements and challenges. *ChemCatChem*, 14(7):202101472, 2022.
5. Saikia, H., Hazarika, K.K., **Chutia, B.**, Choudhury, B. and Bharali, P. A simple chemical route toward high surface area  $\text{CeO}_2$  nanoparticles displaying remarkable radical scavenging activity. *ChemistrySelect*, 2(11):3369-3375, 2017.
6. Hazarika, K. K., **Chutia, B.**, Changmai, R. R., Boruah, P. K., Das, M. R., and Bharali, P.  $\text{Fe}_x\text{Co}_{3-x}\text{O}_4$  nanohybrids anchored on carbon matrix for promoting oxygen electrocatalysis in alkaline medium. *ChemElectroChem*, 9:e202200867, 2022.
7. **Chutia, B.**, Chetry, R., Rao, K. N., Singh, N., Sudarsanam, P., and Bharali, P. Insight into the structure-activity relationship of sponge-like structured  $\text{Co}_3\text{O}_4/\text{C}$  electrocatalyst. (*Communicated/October 2022*)
8. **Chutia, B.**, Bhuyan, P. S., Saikia, S., Deka, C. R., and Bharali, P. Decoding the role of  $\text{CeO}_2$  in enhancing oxygen reduction activity of  $\text{CuO}/\text{C}$  nanostructures (*to be submitted*)

## ***Book Chapters***

1. Patowary, S., **Chutia, B.**, Hazarika, K.K. and Bharali, P. Hybrid electrocatalysts with oxide/oxide and oxide/hydroxide interfaces for oxygen electrode reactions, *In Heterogeneous Nanocatalysis for Energy and Environmental Sustainability*, Volume 1: Energy Applications, Wiley, 2022, Chap 4, ISBN: 1119771994, 9781119771999.
2. Goswami, C., **Chutia, B.**, and Bharali, P. Metal and metal oxide-based nanomaterials for electrochemical applications, *In Emerging Nanostructured Materials for Energy and Environmental Science*, Springer Cham, 2019, Chap 12, ISBN: 978-3-030-04473-2, eBook ISBN: 978-3-030-04474-9, 499–530
3. **Chutia, B.**, Goswami, C., and Bharali, P. Metal oxide-based electrocatalysts for metal-air batteries, *In Metal-air batteries: Principles, progresses and perspective (Accepted for publication/2022)*.

## ***List of Conference/Symposium/Seminar Attended***

1. **Oral presentation**, Bifunctional oxygen electrocatalysis over CeO<sub>2</sub> modified  $\alpha$ -MnO<sub>2</sub>/Mn<sub>3</sub>O<sub>4</sub>/C hybrid hetero-nanostructures, “1<sup>st</sup> International e-Conference on Current Trends in Chemical Research” at Nowgong College, on 22<sup>nd</sup> August 2020.
2. **Poster presentation**, Co<sub>3</sub>O<sub>4</sub> nano-octahedron anchored on carbon as morphology-controlled bifunctional electrode for oxygen electrocatalysis “Sustainability, Medicine and Clean Energy” at Department of Chemical Sciences, on 1<sup>st</sup> March 2022.
3. **Poster presentation**, Design of Fe<sub>x</sub>O<sub>y</sub>-CeO<sub>2</sub>/C nanohybrids with rich oxide-oxide interface toward bifunctional oxygen electrocatalysis, International Conference on “Materials Chemistry and Catalysis” (Virtual Mode) organized by Department of Chemical Sciences, Tezpur University, on 4<sup>th</sup> and 5<sup>th</sup> March 2021.
4. **Poster presentation**, Unification of electro-catalytic oxygen reduction reactions and water oxidation: CeO<sub>2</sub> promoted spinel Mn<sub>3</sub>O<sub>4</sub> nanostructures on carbon, “National Conference on Recent Advances in Applied Sciences” at Gauhati University, Guwahati, on 17<sup>th</sup>-18<sup>th</sup> May 2019.

5. **Poster presentation**, Enhanced Oxygen Electrocatalysis Over  $\text{Mn}_3\text{O}_4/\text{CeO}_2/\text{C}$  Nanohybrid Composite, “*Organix-2018*” at Tezpur University, Tezpur, on 20<sup>th</sup>-21<sup>st</sup> December 2018.
6. **Poster presentation**, Effect of iron doping on the electrocatalytic activity of  $\text{Co}_{3-x}\text{Fe}_x\text{O}_4/\text{C}$  catalysts, “*National Conference on NanoMaterials Science, Technology and Applications*” at Dibrugarh University, Dibrugarh, on 10<sup>th</sup>-11<sup>th</sup> November 2017.
7. **Poster presentation**, Decoding the Role of  $\text{CeO}_2$  in Enhancing Oxygen Reduction Activity of  $\text{CuO}/\text{C}$  Nanostructures, “*National Conference on Research at the Interface of Chemical, Biological and Material Sciences*” At Tezpur University, Tezpur, on 10<sup>th</sup> March 2023.
8. **Participated** in the National Workshop on “*Research Integrity and Awareness*” organized by University Grant Commission at Tezpur University on 26<sup>th</sup> August 2019.
9. **Attended** UGC SAP DRS-II sponsored workshop on *Powder X-ray Diffraction* organized by the Department of Chemical Sciences, Tezpur University, on 14<sup>th</sup> & 15<sup>th</sup> March 2019.
10. **Participated** in the workshop on *Industry-Academia Conclave* organized by the Centre for University-Industry Interface (CUII), Tezpur University, on 20<sup>th</sup> January 2019.
11. **Attended** workshop on *Scanning Electron Microscopy (SEM)* organized by JEOL India Pvt. Ltd. in collaboration with the Department of Physics, Tezpur University, on 13<sup>th</sup> October 2017.

### ***Teaching assistantship/mentorship***

1. **Participated** as a Teacher Mentor at the *Salters’ Chemistry Camp 2018* at Tezpur University, Tezpur Assam.
2. **Worked** as a Tutor for *practical classes for B. Tech. Chemistry (Tezpur University)* in the Autumn Semester of 2018.