

BIO-DATA of DR. PANKAJ BHARALI

Personal Details

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|---------------------------------------|---|
| 1. Email(s) and contact number(s) | E-mail: pankajb[at]tezu.ernet.in
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| 2. Date of Birth | 01/01/1978 |
| 3. Gender (M/F/T) | M |
| 4. Category Gen/SC/ST/OBC | OBC |
| 5. Whether differently abled (Yes/No) | No |

Academic Profile

Ph.D.: CSIR-Indian Institute of Chemical Technology (IICT) Hyderabad – 500 007/ Osmania University, Hyderabad, India,

Thesis Title: Design of novel nanosized ceria-based multicomponent composite oxides for catalytic applications

Supervisor: Prof. Dr. B.M. Reddy, FRSC, FNAE, FNASc, FAPASc

M.Sc.: Gauhati University, Guwahati – 781 014, India

Dissertation Title: Synthesis and characterization of a few transitional metal dithiocarbamates

Supervisor: Prof. Dr. J. N. Ganguli

Professional Career

- 08/2025 – till date: Professor, Deptt. of Chemical Sciences, Tezpur University
- 08/2023 – 08/2025: Associate Professor, Deptt. of Chemical Sciences, Tezpur University
- 06/2024 – 07/2024: Visiting Scientist to Ruhr University Bochum, Germany
- 06/2019 – 06/2019: Visiting Scientist to Boreskov Institute of Catalysis, Novosibirsk, Russia
- 08/2011 – 08/2023: Assistant Professor, Deptt. of Chemical Sciences, Tezpur University
- 02/2011 – 07/2011: UGC-Postdoctoral Fellow, Tezpur University
- 04/2009 – 09/2010: Post-doctoral Research Scientist, AIST Kansai, Ikeda, Japan
- 10/2007 – 12/2007: DAAD Visiting Fellow, Ruhr University Bochum, Germany
- 02/2006 – 04/2006: DAAD Visiting Fellow, Ruhr University Bochum, Germany

Awards/ Honours

- Invited Visiting Scientist, Ruhr University Bochum, Germany (2024, June-July)
- Invited Visiting Scientist, Boreskov Institute of Catalysis, Novosibirsk, Russia (2019, June)
- Editorial Board Member of *Chemistry for Sustainable Development*, RAS Journal, Russia
- Membership award from American Chemical Society (2015)
- Awarded Dr. D.S. Kothari Postdoctoral Fellowship, UGC New Delhi, India (2011)
- Awarded Postdoctoral Research Scientist position at AIST Kansai, Japan (2009)
- Rev Fr L Yeddanapalli Best Thesis Award of Catalysis Society of India
- Awarded Junior/Senior Research Fellowship of CSIR (NET-JRF/SRF) during Ph.D.

Research Expertise/ Interest

- Inorganic Nanomaterials
- Heterogeneous Catalysis
- Electrocatalysis for Fuel Cell and Electrolysers

Research Collaborations

- Prof. Dr. M. Muhler, Prof. Dr. W. Schumann, Ruhr University Bochum, Germany
- Prof. Dr. C. Andronesco, University of Duisburg-Essen, Germany
- Prof. Dr. A. Russell, University of Southampton, United Kingdom
- Prof. Dr. Y. Yamada, Osaka Metropolitan University, Japan
- Prof. K. Tada, Osaka University, Japan

- Dr. M. Kerzhentsev and Dr. I. Ismagilov, Boreskov Institute of Catalysis, Russia
- Prof. P. Suadarsanam, Indian Institute of Technology Hyderabad, India
- Dr. M.R. Das, CSIR-North East Institute of Science and Technology, Jorhat, India
- Prof. P. Saikia, Gauhati University, India
- Prof. U. Bora, Prof. P. Puzari, Prof. A.J. Thakur, Prof. R.C. Deka, Dr. N. Gogoi, Tezpur University

Membership

1. Life Member: Materials Research Society of India; LMB 2676 (2016-)
2. Life Member: Society for Chemical Education, Assam (2016-)
3. Life Member: Catalysis Society of India (2013-)
4. Honorary Member: American Chemical Society (2015-)

Research Project Statistics

Total Projects completed	: 06
Total projects ongoing	: 02 + 01
Number of International projects	: 03
Project submitted for Funding	: NIL
Total Grant earned (in Lakh)	: 180.41095 + 998.8 = 1179.21095

Details of Ongoing Projects:

1. Design and Fabrication of pH Universal Nonprecious Electrocatalysts For Green Hydrogen Energy (M/S Shell India Markets Pvt. Ltd. 2023-; 50000 USD/ year, 41.62 Lakh)
2. Mechanistic Understanding of Reaction Pathways over Bifunctional Fuel Cell Electrodes (CRG-SERB/ DST. 2024-2027; 43.50945 Lakh)
3. Strategic Development of Materials and Devices for Clean Energy Production (PURSE project, ANRF; 998.8 Lakh)

Details of Completed Projects:

1. Green and Sustainable Catalysts Based on Zeolites for Oxidative Transformation Reactions (DST, New Delhi and MES, Bulgaria, 2019-2022; 11.8235 Lakh; As CO-PI, Dr. U. Bora as PI)
2. Directed Functionalization of Oxide and Carbon Nanomaterials for the Development of Efficient Catalysts for Carbon Dioxide Conversion into Value-Added Products (DST, New Delhi and RFBR, Russia, 2019-2021; 21.844 Lakh)
3. Development of Hybrid Catalysts for Oxygen Reduction Reaction (SERB/DST, New Delhi, 2015-2018; 29.496 Lakh)
4. Design of Non-precious Cobalt Oxide based Electrocatalysts (CSIR, New Delhi, 2015-2018; 6 Lakh)
5. Principles of Formation of Nanostructured Oxide Materials and Nanosized Catalysts on Their Basis for Hydrogen Power Production Applications (DST, New Delhi and RFBR, Russia, 2015-2017; 24.618 Lakh)
6. Design of Metal Nanocatalysts Supported on Shape and Size Controlled Metal/Mixed Metal Oxides (Tezpur University/UGC, 2012-2014; 1.5 Lakh)

Current Group Members

1. Mr. B. Athili Chario (Ph.D. Scholar; 07/2025-): CSIR-JRF (NET)
2. Ms. Unmilita Phukan (Ph.D. Scholar; 01/2025-): Institutional Fellow
3. Mr. Darshan Jyoti Gogoi (Ph.D. Scholar; 08/2023-): CSIR-JRF (NET)
4. Ms. Pragya Moni Gogoi (Ph.D. Scholar; 08/2023-): Institutional Fellow
5. Mr. Bhriku Kumar Pegu (Ph.D. Scholar; 09/2022-): UGC-SRF (NET), 03/2024 -08/2024, PhD Exchange fellow, Ruhr University Bochum, Germany
6. Ms. Shaheen Parveez Bhuyan (Ph.D. Scholar; 09/2021-): CRG/SERB funded Project Associate; 03/2024 -08/2024, PhD Exchange fellow, University of Duisburg-Essen, Germany

Alumni

PhD/RA/Postdoc

1. Dr. Suranjana Patowary (Ph.D. Scholar; 07/2019-06/2025)> Asstt. Prof., Girijananda Chowdhury Univ.
2. Dr. Rashmi Chetry (Ph.D. Scholar; 07/2019-12/2024)> Postdoc, CSIR-IICT, Hyderabad
3. Dr. Bhugendra Chutia (Ph.D. Scholar; 07/2017-07/2023)> Asstt. Prof., Basugaon College
4. Dr. Chiranjita Goswami (Ph.D. Scholar; 01/2017-12/2021)> Asstt. Prof., Jagiroad College
5. Dr. Biraj J. Borah (Ph.D. Scholar; 07/2015-02/2020)> Sr. Tech. Asstt., Tezpur University
6. Dr. Kumar K. Hazarika (Ph.D. Scholar; 01/2015-07/2020)> Asstt. Prof., USTM, Meghalaya
7. Dr. Himadri Saikia (Ph.D. Scholar, 08/2013-12/2017)> RA, CSIR-NEIST Jorhat
8. Dr. Manoj Mondal (SERB-NPDF; 03/2017-03/2019)> Research Sc., Jubilant Biosys Ltd.
9. Dr. Anindita Dewan (DST-Women Scientist, 12/2013-03/2015)> Postdoc, Tezpur University

Visiting PhD Student

1. Dr. Gebrehiwot G Beyene (08/2017-01/2018)> Asstt. Prof., Addis Ababa Sci. Tech. Univ., Ethiopia

MSc/ Integrated MSc Students

1. Mr. Arunav Pratim Saikia (01/2025-06/2025)> Executive Chemist, Oil India Ltd., Duliagan
2. Ms. Madhumouli Maji (01/2025-06/2025)
3. Ms. Mayusna Phukan (01/2025-06/2025)
4. Ms. Gargi Borgohain (01/2024-06/2024)
5. Ms. Roohi Choudhury (01/2024-06/2024) > PhD Student, NIT Meghalaya, Shillong
6. Ms. Priya Mehta (01/2024-06/2024) > Bank Probationary Officer, Assam
7. Mr. Arif Faisal Ahmed (01/2023-06/2023)> PhD Student, University of Bonn, Germany
8. Mr. Ferdinand Phukan (01/2023-06/2023)> ONGC, Sivasagar
9. Ms. Karishma Chetry (01/2023-06/2023)
10. Ms. Upasana Parashar (01/2022-05/2022)> Teacher in Junior College, Jorhat
11. Ms. Sanjana Das (01/2022-05/2022)> PhD Student, IIT Guwahati
12. Ms. Angana Mahanta (01/2021-06/2021)> PhD Student, CSIR-NEIST, Jorhat
13. Mr. Dipankar Barman (01/2021-06/2021)
14. Mr. Sourav Debnath (01/2020-06/2020)> Post Graduate Teacher, Digboi
15. Mr. Deepjyoti Choudhury (01/2020-06/2020)> Chemist, Honeywell Int. Ind. Pvt. Ltd., Gurugram
16. Mr. Ashok Mishra (01/2019-06/2019) > Chemist, ONGC Ltd.
17. Ms. Ruprekha Das (01/2019-06/2019)
18. Mr. Rabu Changmai (01/2018-05/2018)> PhD Student, IIT Guwahati
19. Mr. Manash Jyoti Kalita (01/2018-05/2018)> Executive Chemist, Oil India Ltd., Duliagan
20. Ms. Priyanka Adhikari (01/2018-05/2018)> PhD Student, IIT Guwahati
21. Ms. Hiya Talukdar (01/2017-05/2017)>)> PhD, Tezpur Univ.> Asstt. Prof., B. B. Kishan College
22. Mr. Bijoy Ghosh (01/2017-05/2017))> PhD, Tezpur Univ.> Asstt. Prof., Dhakuakhana College
23. Mr. Diptajyot Gogoi (01/2017-05/2017)> PhD Student, Gauhati University
24. Mr. Hemen Gogoi (01/2016-05/2016)> PhD, IIT Bombay> Asstt. Prof., Moran College
25. Mr. Debashis Hazarika (01/2016-05/2016)> Audit Officer, APSC
26. Ms. Sampurna Bordoloi (01/2016-05/2016)> Govt. School Teacher
27. Ms. Sanjuri Rajkumari (01/2016-05/2016)> Govt. School Teacher
28. Ms. Nandini Borah (01/2016-05/2016)> Govt. School Teacher
29. Ms. Rimjim Choudhury (01/2015-05/2015)> Govt. School Teacher
30. Mr. Rajib Duarah (01/2015-05/2015)> Govt. School Teacher
31. Mr. Bhugendra Chutia (01/2014-05/2014)> PhD, Tezpur Univ.> Asstt. Prof., Basugaon College
32. Ms. Rinkumoni Devi (01/2013-05/2013)> Govt. School Teacher
33. Mr. Pingal Sarmah (01/2012-05/2012)

Publications statistics

Total publications: 99

Journal Publications: 85

Book/Chapters: 14; Total Citation: 3633 (Google Scholar, October 2025); h-Index: 34; i10-Index: 69

Selected Publications (Last 5 years)

1. R. Chetry, S.P. Bhuyan, R. Dutta, S. Das, M.R. Das, P. Dutta, N.K. Gour, R.C. Deka, P. Bharali, Interface-Driven Pd-Ag-Cu/C Nanocomposites with Increased Oxygen Reduction Reaction Kinetics, **Nanoscale**, **17** (2025) 20269 – 20279.
2. S. Patowary, B. Chutia, P.M. Gogoi, P. Bharali, A Robust Bifunctional Electrocatalyst with Crystalline-Amorphous Interfaces toward Oxygen Reduction/Evolution Reactions, **Topics in Catalysis**, **00** (2025) 0000 – 0000. DOI: <https://doi.org/10.1007/s11244-025-02147-3>.
3. B. Swapna, M.B. Barnabas, P.M. Gogoi, P. Bharali, G. Madras, P. Sudarsanam, Morphology-tuned MnOx/TiO₂ nanocatalysts for recycling PET plastic waste with biomass-derived ethylene glycol, **Nanoscale**, **17** (2025) 10620-10631.
4. R. Chetry, R. Dutta, M.R. Das, P. Bharali, Deciphering the Effect of Fe and Cu in Pd Lattice for the Oxygen Reduction Reaction, **Energy & Fuels**, **39** (2025) 2790–2798.
5. S. Patowary, A. Watson, R. Chetry, P. Sudarsanam, A.E. Russell, P. Bharali. Oxygen-Vacancy Rich Co₃O₄/CeO₂ Interface for Enhanced Oxygen Reduction and Evolution Reactions, **ChemCatChem**, **17** (2025) e202401759.
6. B. Swapna, N. Singh, S. Patowary, P. Bharali, G. Madras, P. Sudarsanam, Efficient glycolysis of used PET bottles into a high-quality valuable monomer using a shape-engineered MnOx nanocatalyst, **Catalysis Science & Technology**, **14** (2024) 5574-55878.
7. B. Chutia, R. Chetry, K.N. Rao, N. Singh, P. Sudarsanam, P. Bharali, Durable and Stable Bifunctional Co₃O₄-Based Nanocatalyst for Oxygen Reduction/Evolution Reactions, **ACS Applied Nano Materials**, **7** (2024) 3620–3630.
8. R. Chetry, B. Chutia, S. Patowary, B.J. Borah, P. Sudarsanam, P. Bharali, Electronic Modulation of Pd/C by Simultaneous Doping of Cu and Co Tendering a Highly Durable and Methanol-Tolerant Oxygen Reduction Electrocatalyst, **Energy & Fuels**, **37** (2023), 9557–9567.
9. C. Goswami, B.J. Borah, R. Das, K. Tada, S. Tanaka, I.P. Prosvirin, I.Z. Ismagilov, E.V. Matus, M. Kerzhentsev, P. Bharali, CeO₂ Promotes Electrocatalytic Formic Acid Oxidation of Pd-based Alloys, **Journal of Alloys and Compounds**, **948** (2023) 169665.
10. S. Patowary, R. Chetry, C. Goswami, B. Chutia, P. Bharali, Oxygen Reduction Reaction Catalyzed by Supported Nanoparticles: Advancements and Challenges, **ChemCatChem**, **14** (2022) e202101472.
11. B. Chutia, S. Patowary, A. Misra, K.N. Rao, P. Bharali, Morphology Effect of Co₃O₄ Nanooctahedron in Boosting Oxygen Reduction and Oxygen Evolution Reactions, **Energy & Fuels**, **36** (2022), 13863–13872.
12. K.K. Hazarika, B. Chutia, R.R. Changmai, P.K. Boruah, M.R. Das, P. Bharali, Fe_xCo_{3-x}O₄ Nanohybrids Anchored on a Carbon Matrix for High- Performance Oxygen Electrocatalysis in Alkaline Media, **ChemElectroChem** **9** (2022), e202200867.
13. B. Chutia, P. Bharali, Oxygen deficient interfacial effect in CeO₂-modified Fe₂O₃/C for oxygen reduction reaction in alkaline electrolyte, **Catalysis Communications**, **164** (2022) 106432.
14. C. Goswami, K.K. Hazarika, Y. Yamada, P. Bharali, Nonprecious Hybrid Metal Oxide for Bifunctional Oxygen Electrodes: Endorsing the Role of Interfaces in Electrocatalytic Enhancement, **Energy & Fuels**, **35** (2021) 13370-13381.

15. B.J. Borah, C. Goswami, Y. Yamada, K. Tada, S. Tanaka, P. Bharali, Pd₂CuCo/C Hybrid with Nanoflower Morphology towards Oxygen Reduction and Formic Acid Oxidation Reactions: Experimental and Computational Studies, **Energy & Fuels**, **35** (2021) 11515-11524.
16. B. Chutia, N. Hussain, P. Puzari, D. Jampaiah, S.K. Bhargava, E. Matus, I. Ismagilov, M. Kerzhentsev, P. Bharali, Unraveling the Role of CeO₂ in Stabilization of Multivalent Mn Species on a MnO₂/Mn₃O₄/CeO₂/C Surface for Enhanced Electrocatalysis, **Energy & Fuels**, **35** (2021) 10756-10769.
17. K.K. Hazarika, Y. Yamada, E. Matus, M. Kerzhentsev, P. Bharali, Enhancing the electrocatalytic activity via hybridization of Cu(I/II) oxides with Co₃O₄ towards oxygen electrode reactions, **Journal of Power Sources**, **490** (2021) 229511.
18. C. Goswami, H. Saikia, B.J. Borah, M.J. Kalita, K. Tada, S. Tanaka, P. Bharali, Boosting the electrocatalytic activity of Pd/C by Cu alloying: Insight on Pd/Cu composition and reaction pathway, **Journal of Colloid and Interface Science**, **587** (2021) 446-456.
19. C Goswami, Y Yamada, E Matus, I Ismagilov, M Kerzhentsev, P. Bharali, Elucidating the Role of Oxide-Oxide/Carbon Interfaces of CuOx-CeO₂/C in Boosting Electrocatalytic Performance, **Langmuir**, **36** (2020) 15141-15152.
20. C. Goswami, H. Saikia, K. Tada, S. Tanaka, P. Sudarsanam, S.K. Bhargava, P. Bharali, Bimetallic Palladium-Nickel Nanoparticles Anchored on Carbon as High Performance Electrocatalysts for Oxygen Reduction and Formic Acid Oxidation Reactions, **ACS Applied Energy Materials**, **3** (2020) 9285-9295.
21. B. J. Borah, Y. Yamada, P. Bharali, Unravelling the Role of Metallic Cu in Cu-CuFe₂O₄/C Nanohybrid for Enhanced Oxygen Reduction Electrocatalysis, **ACS Applied Energy Materials**, **3** (2020) 3488-3496.

Full List of Publications (Total Citation: 3633, h-index: 34; Google Scholar, October 2025)

1. R. Chetry, S.P. Bhuyan, R. Dutta, S. Das, M.R. Das, P. Dutta, N.K. Gour, R.C. Deka, P. Bharali, Interface-Driven Pd-Ag-Cu/C Nanocomposites with Increased Oxygen Reduction Reaction Kinetics, **Nanoscale**, **17** (2025) 20269 – 20279.
2. S. Patowary, B. Chutia, P.M. Gogoi, P. Bharali, A Robust Bifunctional Electrocatalyst with Crystalline-Amorphous Interfaces toward Oxygen Reduction/Evolution Reactions, **Topics in Catalysis**, **00** (2025) 0000 – 0000. DOI: <https://doi.org/10.1007/s11244-025-02147-3>.
3. B. Swapna, M.B. Barnabas, P.M. Gogoi, P. Bharali, G. Madras, P. Sudarsanam, Morphology-tuned MnOx/TiO₂ nanocatalysts for recycling PET plastic waste with biomass-derived ethylene glycol, **Nanoscale**, **17** (2025) 10620-10631.
4. R. Chetry, R. Dutta, M.R. Das, P. Bharali, Deciphering the Effect of Fe and Cu in Pd Lattice for the Oxygen Reduction Reaction, **Energy & Fuels**, **39** (2025) 2790–2798.
5. S. Patowary, A. Watson, R. Chetry, P. Sudarsanam, A.E. Russell, P. Bharali. Oxygen-Vacancy Rich Co₃O₄/CeO₂ Interface for Enhanced Oxygen Reduction and Evolution Reactions, **ChemCatChem** **17** (2025) e202401759.
6. B. Swapna, N. Singh, S. Patowary, P. Bharali, G. Madras, P. Sudarsanam, Efficient glycolysis of used PET bottles into a high-quality valuable monomer using a shape-engineered MnOx nanocatalyst, **Catalysis Science & Technology**, **14** (2024) 5574-55878.

7. B. Chutia, R. Chetry, K.N. Rao, N. Singh, P. Sudarsanam, P. Bharali, Durable and Stable Bifunctional Co_3O_4 -Based Nanocatalyst for Oxygen Reduction/Evolution Reactions, **ACS Applied Nano Materials**, **7** (2024) 3620–3630.
8. K.K. Hazarika, S.P. Bhuyan, R. Chetry, P. Bharali, Boosting oxygen electrode efficiency using engineered $\text{CuO}/\text{Cu}_2\text{O}/\text{C}$ nanostructure, **cMat** **1** (2024), e34.
9. B. Sumithra, V. Saravanan, C. Ramalingan, P. Lakshmanan, D. Sivaganesh, B. Chutia, P. Bharali, A. John, R.D. Pyarasani, G. Thrimurthulu, G. Das, Interface engineered 2D-2D-g- $\text{C}_3\text{N}_4/\text{SnWO}_4$ S-scheme heterojunction: Clioquinol degradation and dopamine sensing properties, **Inorganic Chemistry Communications**, **161** (2024) 112039.
10. K.K. Hazarika, C. Goswami, P. Bharali, High-Performance Cobalt Chalcogenides for Oxygen Reduction Reaction, **Current Indian Science**, **2** (2024), e2210299X313143.
11. R. Chetry, B. Chutia, S. Patowary, B.J. Borah, P. Sudarsanam, P. Bharali, Electronic Modulation of Pd/C by Simultaneous Doping of Cu and Co Tendering a Highly Durable and Methanol-Tolerant Oxygen Reduction Electrocatalyst, **Energy & Fuels**, **37** (2023), 9557–9567.
12. C. Goswami, B.J. Borah, R. Das, K. Tada, S. Tanaka, I.P. Prosvirin, I.Z. Ismagilov, E.V. Matus, M. Kerzhentsev, P. Bharali, CeO_2 promotes electrocatalytic formic acid oxidation of Pd -based alloys, **Journal of Alloys and Compounds**, **948** (2023) 169665.
13. M. Sarmah, D. Sarmah, A. Dewan, P. Bora, P.K. Boruah, M.R. Das, P. Bharali, U. Bora, Dual Responsive Sustainable $\text{Cu}_2\text{O}/\text{Cu}$ Nanocatalyst for Sonogashira and Chan-Lam Cross-Coupling Reactions, **Catalysis Letters**, **153** (2023) 1423–1437.
14. E. Matus, O. Sukhova, M. Kerzhentsev, I. Ismagilov, S. Yashnik, V. Ushakov, O. Stonkus, E. Gerasimov, A. Nikitin, P. Bharali, Z. Ismagilov, Hydrogen Production through Bi-Reforming of Methane: Improving Ni Catalyst Performance via an Exsolution Approach, **Catalysts** **12**(12) (2022) 1493.
15. B. Chutia, S. Patowary, A. Misra, K.N. Rao, P. Bharali, Morphology Effect of Co_3O_4 Nanooctahedron in Boosting Oxygen Reduction and Oxygen Evolution Reactions, **Energy & Fuels**, **36** (2022) 13863–13872.
16. K.K. Hazarika, B. Chutia, RR. Changmai, PK Boruah, MR Das, P. Bharali, $\text{Fe}_x\text{Co}_{3-x}\text{O}_4$ Nanohybrids Anchored on a Carbon Matrix for High- Performance Oxygen Electrocatalysis in Alkaline Media, **ChemElectroChem**, **9** (2022) e202200867.
17. S. Patowary, R. Chetry, C. Goswami, B. Chutia, P. Bharali, Oxygen Reduction Reaction Catalyzed by Supported Nanoparticles: Advancements and Challenges, **ChemCatChem**, **14** (2022) e202101472.
18. B. Chutia, P. Bharali, Oxygen deficient interfacial effect in CeO_2 -modified $\text{Fe}_2\text{O}_3/\text{C}$ for oxygen reduction reaction in alkaline electrolyte, **Catalysis Communications**, **164** (2022) 106432.
19. C. Goswami, K.K. Hazarika, Y. Yamada, P. Bharali, Nonprecious Hybrid Metal Oxide for Bifunctional Oxygen Electrodes: Endorsing the Role of Interfaces in Electrocatalytic Enhancement, **Energy & Fuels**, **35** (2021) 13370-13381.
20. B.J. Borah, C. Goswami, Y. Yamada, K. Tada, S. Tanaka, P. Bharali, $\text{Pd}_2\text{CuCo}/\text{C}$ Hybrid with Nanoflower Morphology towards Oxygen Reduction and Formic Acid Oxidation Reactions: Experimental and Computational Studies, **Energy & Fuels**, **35** (2021) 11515-11524.

21. B. Chutia, N. Hussain, P. Puzari, D. Jampaiah, S.K. Bhargava, E. Matus, I. Ismagilov, M. Kerzhentsev, P. Bharali, Unraveling the Role of CeO₂ in Stabilization of Multivalent Mn Species on a MnO₂/Mn₃O₄/CeO₂/C Surface for Enhanced Electrocatalysis, **Energy & Fuels**, **35** (2021) 10756-10769.
22. K.K. Hazarika, Y. Yamada, E. Matus, M. Kerzhentsev, P. Bharali, Enhancing the electrocatalytic activity via hybridization of Cu(I/II) oxides with Co₃O₄ towards oxygen electrode reactions, **Journal of Power Sources**, **490** (2021) 229511.
23. C. Goswami, H. Saikia, B.J. Borah, M.J. Kalita, K. Tada, S. Tanaka, P. Bharali, Boosting the electrocatalytic activity of Pd/C by Cu alloying: Insight on Pd/Cu composition and reaction pathway, **Journal of Colloid and Interface Science**, **587** (2021) 446-456.
24. P. Deka, R.C. Deka, P. Bharali, Mesoporous CuO nanocatalysts for oxidative degradation of persistent organic pollutants, **International Journal of Nanotechnology**, **18** (2021) 505-530.
25. A. Dewan, M. Sarmah, P. Bharali, A.J. Thakur, P.K. Boruah, M.R. Das, U. Bora, Pd Nanoparticles-Loaded Honeycomb-Structured Bio-nanocellulose as a Heterogeneous Catalyst for Heteroaryl Cross-Coupling Reaction, **ACS Sustainable Chemistry & Engineering**, **9** (2021) 954-966.
26. A. Dewan, M. Sarmah, P. Bhattacharjee, P. Bharali, A.J. Thakur, U. Bora, Sustainable nano fibrillated cellulose supported in situ biogenic Pd nanoparticles as heterogeneous catalyst for C–C cross coupling reactions, **Sustainable Chemistry and Pharmacy**, **23** (2021) 100502.
27. C. Goswami, Y. Yamada, E. Matus, I. Ismagilov, M. Kerzhentsev, P. Bharali, Elucidating the Role of Oxide-Oxide/Carbon Interfaces of CuOx-CeO₂/C in Boosting Electrocatalytic Performance, **Langmuir**, **36** (2020) 15141-15152.
28. C. Goswami, H. Saikia, K. Tada, S. Tanaka, P. Sudarsanam, S.K. Bhargava, P. Bharali, Bimetallic Palladium-Nickel Nanoparticles Anchored on Carbon as High Performance Electrocatalysts for Oxygen Reduction and Formic Acid Oxidation Reactions, **ACS Applied Energy Materials**, **3** (2020) 9285-9295.
29. B. J. Borah, Y. Yamada, P. Bharali, Unravelling the Role of Metallic Cu in Cu-CuFe₂O₄/C Nanohybrid for Enhanced Oxygen Reduction Electrocatalysis, **ACS Applied Energy Materials**, **3** (2020) 3488-3496.
30. K. K. Hazarika, D. Hazarika, P. Bharali, Binary α-Fe₂O₃–Co₃O₄ nanostructures for advanced oxidation process: Role of synergy for enhanced catalysis, **Applied Organometallic Chemistry**, **34** (2020) e5920 (1-11).
31. B. J. Borah, P. Bharali, Direct Hydrogenation of Nitroaromatics at Room Temperature Catalyzed by Magnetically Recoverable Cu@Fe₂O₃ Nanoparticles, **Applied Organometallic Chemistry**, **34** (2020) e5753 (1-11).
32. K.K. Hazarika, H. Talukdar, P. Sudarsanam, S.K. Bhargava, P. Bharali, Highly dispersed Mn₂O₃–Co₃O₄ nanostructures on carbon matrix as heterogeneous Fenton-like catalyst, **Applied Organometallic Chemistry**, **34** (2020) e5512 (1-13).
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50. H. Saikia, B.J. Borah, Y. Yamada, P. Bharali, Enhanced catalytic activity of CuPd alloy nanoparticles towards reduction of nitroaromatics and hexavalent chromium, **Journal of Colloid and Interface Science**, **486** (2017) 46 – 57.
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83. B.M. Reddy, P. Lakshmanan, P. Bharali, P. Saikia, Dehydration of 4-methylpentan-2-ol over $Ce_xZr_{1-x}O_2/SiO_2$ nano-composite catalyst, **Journal of Molecular Catalysis A: Chemical**, **258** (2006) 355 – 360.
84. B.M. Reddy, K.N. Rao, G.K. Reddy, P. Bharali, Characterization and catalytic activity of $V_2O_5/Al_2O_3-TiO_2$ for selective oxidation of 4-methylanisole, **Journal of Molecular Catalysis A: Chemical**, **253** (2006) 44 – 51.
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Book(s)/ Chapter(s) in Books

86. R. Chetry, S.P. Bhuyan, P. Bharali, Bimetallic Nanoparticles for Electrocatalytic Oxygen Reduction and Urea Oxidation Reactions, **Nova Science Publishers**, 2024, Ch. 3 (ISBN: 979-8-89113-496-6).
87. B. Chutia, C. Goswami, P. Bharali, Metal Oxide-Based Electrocatalysts for Metal-Air Batteries. In Metal-Air Batteries, Principles, Progress, and Perspectives, **CRC Press**, 2023, Ch. 15 (eISBN: 9781003295761)
88. P. Sudarsanam, Y. Yamauchi, P. Bharali, (eds) Heterogeneous Nanocatalysis for Energy and Environmental Sustainability, Volume 1: Energy Applications, **Wiley**, 2022, ISBN: 9781119771999.
89. P. Sudarsanam, Y. Yamauchi, P. Bharali, (eds) Heterogeneous Nanocatalysis for Energy and Environmental Sustainability, Volume 2: Environmental Applications, **Wiley**, 2022, ISBN: 9781119772026.
90. S. Patowary, B. Chutia, K.K. Hazarika, P. Bharali, Hybrid electrocatalysts with oxide/oxide and oxide/hydroxide interfaces for oxygen electrode reactions. In Heterogeneous Nanocatalysis for Energy and Environmental Sustainability, volume 1, **Wiley**, 2022, Ch. 4 (ISBN: 9781119771999).
91. R. Chetry, C. Goswami, B.J. Borah, P. Bharali, Morphology- and size-selective Pd- based electrocatalyst for fuel cell reactions. In Heterogeneous Nanocatalysis for Energy and Environmental Sustainability, volume 1, **Wiley**, 2022, Ch. 8 (ISBN: 9781119771999).

92. K.K. Hazarika, C. Goswami, P. Bharali, Removal of persistent organic pollutants using redox active metal oxide nanocatalysts by advanced oxidation processes, In Inorganic materials for energy, medicine and environmental remediation, **Springer Pub.**, 2022, **Chap 9**, pp. 215-240.
93. K. K. Hazarika, P. Bharali, 3d-Metal Oxide Nanostructures for Oxygen Electrocatalysis, In Advanced Heterogeneous Catalysts Volume 1: Applications at the Nano-Scale, **ACS Symposium Series**, 2020, **Chap 12**, pp. 353-372.
94. C. Goswami, B. Chutia, and P. Bharali, Metal and Metal Oxide-Based Nanomaterials for Electrochemical Applications, In Emerging Nanostructured Materials for Energy and Environmental Science, **Springer Pub.**, 2019, **Chap 12**, pp. 499-530.
95. B.J. Borah, M. Mondal, P. Bharali, Palladium-based Hybrid Nanocatalysts: Application toward Reduction Reactions, In Noble Metal-Metal Oxide Hybrid Nanoparticles: Fundamentals and Applications, **Elsevier Pub.**, 2019, **Chap 27**, pp. 565 – 583, ISBN: 978-0-12-814134-2, eBook ISBN: 978-0-12-814135-9.
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97. B.M. Reddy, G. Thrimurthulu, and P. Bharali, Catalytic Regulation and Utilization of Greenhouse Gases, In Environmental Pollution and Its Relation to Climate Change (Ed., Ahmed El Nemr), **Nova Science Publishers, Inc., New York**, 2012, **chapter 3**, pp. 65 – 104, ISBN: 978-1-61761-794-2.
98. P. Bharali and B.M. Reddy, Design of Ceria-based Nanocomposite Oxides for Catalytic Applications, **LAMBERT Academic Publishing, Germany**, 2011, ISBN 978-3-8443-1791-6, pp. 1-168.
99. B.M. Reddy, P. Bharali, and P. Saikia, A Comprehensive Overview on Synthesis Techniques of Nanostructured Oxides, In New Nanotechniques, **Nova Science Publishers, Inc., New York**, 2009, **chapter 6**, pp. 243 – 276, ISBN: 978-1-60876-470-9.

Invited Talk in Conference/Symposia/ Workshop

1. Invited Talk, 2nd International Conference on "Emerging Areas of Chemistry" (ICEAC 2025)" held at Department of Chemistry, Tripura University from 12th – 14th February 2025.
2. Invited Talk, Indo-French International Symposium on Cross Fertilization between Academia and Industry: Towards Safer and Efficient Catalytic Processes held at BITS Pilani, Hyderabad Campus from 24th – 26th October 2024.
3. Invited Talk, SERB sponsored National Workshop "Frontiers in Materials Sciences: Challenges and Opportunities" held at the Department of Chemical Sciences, Tezpur University from 7th – 8th March 2024.
4. Invited Talk, "Chemistry workshop" as part of the InSCIgnis held at the Department of Chemical Sciences, Tezpur University from 28th – 29th February 2024.
5. Invited Talk, SusChemE 2.0, International Conference on Sustainable Chemistry & Engineering held at Institute of Chemical Technology (ICT), Mumbai during 14th – 16th September 2023.
6. Invited Talk, "Lecture Series on Chemistry Education and Research" held at Department of Chemistry, Cotton University, 17 August 2019.

7. Invited Talk, "Lecture Series: Materials Science" held at Department of Applied Sciences, Gauhati University, 22 March 2019.
8. Resource Person, Student Centric and Curriculum based Orientation Programme for Chemistry students (under DBT star College Scheme) held at Digboi College, Digboi, 27 March 2018.
9. Invited Talk, National conference on Applied Sciences, Sustainable & Evolving Technologies (ASSET) & 63rd Annual Technical Session of Assam Science Society held at Central Institute of Technology, Kokrajhar, 9-11 March 2018.
10. Invited Talk, Indo-French workshop on Green and Sustainable Chemistry: Role of Catalyst held at Indian Institute of Technology (ISM) Dhanbad, 6-8 February 2018.
11. Invited Talk, International Conference on Sophisticated Instruments in Modern Research (ICSIMR-2017) held at Indian Institute of Technology Guwahati, 30 June-1 July 2017.
12. Invited Talk, Symposium on Surface Science & Nanotechnology -25th Anniversary of SSSJ Kansai" held at Kyoto, Japan, 24-25 January, 2017.
13. Invited Talk, KIC-TEQIP Short Term Course on Recent Trends in Catalysis held at Indian Institute of Technology Guwahati, 13-14 May, 2016.
14. Invited Talk, MRSI Symposium "Advanced Materials for Sustainable Applications" and 27th Annual General Meeting of MRSI held at CSIR-NEIST, Jorhat, 18-21 February, 2016.
15. Invited Talk, National Seminar on Recent Development on Applied Chemistry held at Bajali College, Pathsala, 25 January 2016.
16. Invited Talk, AICTE-NEQIP funded workshop held at Institute of Science and Technology, Gauhati University, 3-4 March, 2015.
17. Resource Person, DST-Inspire Internship Programme held at Tezpur University, 23-27 December, 2013.
18. Invited Talk, Indo-Finnish Symposium on Green Chemistry: Role of catalysts on production of green fuel held at Tezpur University, 1 February, 2013.
19. Resource Person, Workshop on Career Counselling in Chemistry held at Debraj Roy College, Golaghat, 3 March 2012.

Reviewer of Journals

ACS Catalysis (ACS), ACS Applied Materials & Interfaces (ACS), ACS Applied Energy Materials (ACS), Langmuir (ACS), Energy & Fuels (ACS), The Journal of Physical Chemistry C (ACS), Industrial & Engineering Chemistry Research (ACS), Materials Chemistry Frontiers (RSC), Inorganic Chemistry Frontiers (RSC), Sustainable Energy & Fuels (RSC), CrystEngComm (RSC), Physical Chemistry Chemical Physics (RSC), Nanoscale (RSC), New Journal of Chemistry (RSC), Chemical Communications (RSC), Dalton Transactions (RSC), Journal of Materials Chemistry A (RSC), Catalysis Science & Technology (RSC), RSC Advances (RSC), Catalysis Today (Elsevier), Journal of Industrial and Engineering Chemistry (Elsevier), Molecular Ca-

talysis (Elsevier), Chemical Engineering Journal (Elsevier), Chemical Engineering Science (Elsevier), Material Research Bulletin (Elsevier), Inorganic Chemistry Communications (Elsevier), Catalysis Letters (Springer), Advanced Materials (Wiley), Advanced Functional Materials (Wiley), ChemCatChem (Wiley), ChemSusChem (Wiley), Applied Organometallic Chemistry (Wiley), etc.

Organizational, University activities, Student management/ mentoring

- Warden Nilachal Mens' Hostel, Sep 2011-Sep 2014
- Mentored students in All sports, cultural and extracurricular activities of the boarder
- Mentoring students of the department on regular basis
- Served as members/conveners of various committees: Anti-ragging, convocations, Purchase, Subject expert, Annual Report, INSPIRE program
- DST-FIST committee member, 2017-2022
- Member Convocation Committee, all convocations held between 2012-2024
- Member Admission Committee, all admissions during 2012-2025
- TUEE Invigilation duty, all TUEE during 2014-2023 (except covid lockdown period)
- TUEE question paper setting, 2011-2025 (except covid lockdown period)
- Convener, UGC-SAP supported national conference (CDCS 2015), 23 & 24 November 2015
- Convener, International Conference on 'Materials Chemistry and Catalysis' (Virtual Mode), March 4 & 5, 2021
- Convener, National conference on Sustainability, Medicine and Clean Energy (SMCE, 2022), March 1, 2022
- Convener, Current Trends of Research in Chemistry Towards Sustainability, Health Care and Forensic Analysis (SusChemHeca-2024), March 14-15, 2024
- Convener, National conference on Materials Chemistry & Catalysis (MCC-2025), March 7 & 8, 2025
- Organized 1 international and 3 national seminars as members
- Departmental purchase committee, 2019-2024
- Core committee member, Tezpur University Students' Council election, September 2024
- Annual report preparation committee, 2025
- Organizing member, STUTI, 31st October- 7 November 2022, in collaboration with Panjab Univ.
- Technical committee Lab renovation, Chemical Sciences, 2022
- Examination Coordinator, Chemical Sciences, 2016-2019
- Committee Member of Tech Evaluation Com, Chemisorption System (TPO-TPR-TPD), 03/03/2020
- Committee member of report preparation for NAAC and AAA, 2018-2019
- Member, Organizing Committee Assam Science Festival 2019
- Screening Committee, Guest Faculty recruitment of Chemical Sciences, 2019
- Lectures on frontier knowledge, imagination and initiatives based on the works of Nobel laureates of the year 2017
- Member of the local organizing committee, DST Inspire camp, June 2012, December 2013
- Member of Preparation of Proposal, Master of Forensic Science & Criminology, September 2013
- Member of Unifest 2011, Dec 16-20, 2011
- Coordinator PhD entrance test, Dec 22, 2011, June 20, 2012
- Member of TechXetra committee, Oct 2014
- TUEE Centre representative, 2012, 2013, 2015-2019, 2021-2024
- Member Board of Studies, Chemical Sciences, Feb 2015