

# Curriculum Vitae

## Name & Address

**DEBAJYOTI BHATTACHARJEE**

Department of Chemistry,  
Majuli College,  
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## Contact

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## Educational Details

Degree/Exam	Board/University	Institute	Year of Passing	Percentage
HSLC	SEBA	Jorhat Govt. Boys' School	2004	78.83
HS	AHSEC	J.B.College, Jorhat	2006	75.00
B.Sc. (Chemistry Major)	Dibrugarh University	J.B.College, Jorhat	2009	75.60
M.Sc. (Inorganic Chemistry)	Gauhati University	Department of Chemistry, Gauhati University	2011	76.40

- Awarded Ph.D. in Chemical Sciences from Tezpur University under the supervision of **Prof. Ramesh Chandra Deka**, Dept. of Chemical Sciences, Tezpur University on May, 2018.
- **Research Topic:** Mechanism of Catalytic Oxidation of Nitric Oxide and Decomposition Kinetics of Hydrofluoroethers: A Density Functional Approach
- **Total Citations:** 170, **h-index:** 8, **i-10 index:** 6

## Subjects of Interest

Inorganic Chemistry, Computational Chemistry, Quantum Chemistry, Catalysis.

## List of Publications

1. **Bhattacharjee, D.**, Mishra, B.K., Deka, R. C., Effect of double aluminium doping on the structure, stability and electronic properties of small gold clusters, *J. Mater. Sci.* 50, 4586–4599, 2015.
2. **Bhattacharjee, D.**, Mishra, B.K., Deka, R. C., Theoretical insight on atmospheric chemistry of HFE-365mcf3: reactions with OH radicals, atmospheric lifetime, and fate of alkoxy radicals ( $\text{CF}_3\text{CF}_2\text{CH}(\text{O}\cdot)\text{OCH}_3/\text{CF}_3\text{CF}_2\text{CH}_2\text{OCH}_2\text{O}\cdot$ ), *J. Mol. Model.*, 21, 69, 2015.
3. **Bhattacharjee, D.**, Mishra, B.K., Chakrabartty, A. K., Deka, R. C., Catalytic Activity of Anionic Au-Ag Dimer for Nitric Oxide Oxidation: A DFT Study, *New J. Chem.* 39, 2209–2216, 2015.
4. **Bhattacharjee, D.**, Mishra, B.K., Deka, R. C., A DFT study on structure, stabilities and electronic properties of double magnesium doped gold clusters, *RSc. Adv.* 4, 56571-56581, 2014.
5. **Bhattacharjee, D.**, Mishra, B.K., Chakrabartty, A. K., Deka, R. C. DFT and QTAIM studies on structure and stability of beryllium doped gold clusters, *Comput. Theor. Chem.* 1034, 61-72, 2014.
6. Mishra, B.K., Gour, N. K., **Bhattacharjee, D.\***, Deka, R.C., Atmospheric chemistry of HFE-7000 (i-C<sub>3</sub>F<sub>7</sub>OCH<sub>3</sub>) and isofluoro-propyl formate (i-C<sub>3</sub>F<sub>7</sub>OC(O)H): reactions with OH radicals, atmospheric lifetime and fate of alkoxy radical (i-C<sub>3</sub>F<sub>7</sub>OCH<sub>2</sub>O•) - A DFT study, *Mol. Phys.* 114, 618-626, 2016.
7. **Bhattacharjee, D.**, Tiwari, L., Singh. H. J., Mishra, B.K., Deka, R. C., Theoretical investigation on mechanism, kinetics and thermochemistry of gas-phase reactions of ethyl trifluoroacetate with OH radicals, *J. Fluor. Chem.* 178, 79-85, 2015.
8. Deka, R.C., **Bhattacharjee, D.**, Chakrabartty, A. K., Mishra, B.K. Catalytic oxidation of NO by Au<sub>2</sub><sup>-</sup> dimers: A DFT Study, *RSc. Adv.* 4, 5399-5404, 2014.
9. Begum, P., **Bhattacharjee, D.**, Mishra, B.K., Deka, R.C. Density functional study on structures, stabilities and electronic of size-selected Pd<sub>n</sub>Si (n=1-7 and q=0,+1,-1) clusters: comparison with pure palladium clusters, *Theor. Chem. Acc.* 133, 1418, 2014.
10. Mohan, S. C., **Bhattacharjee, D.**, Deka, R. C., Jothivenkatachalam, K. Combined experimental and theoretical investigations on the encapsulation of nickel (ii) tet-a complex in zeolite Y and its photocatalytic activity, *RSc. Adv.* 6, 71214-71222, 2016
11. Sar, D., Bag, R., **Bhattacharjee, D.**, Deka, R. C., Punniyamurthy, T. Iron(III)-Mediated Radical Nitration of Bisarylsulfonyl Hydrazones: Synthesis of Bisarylnitromethyl Sulfones, *J. Org. Chem.* 80, 6776-6783, 2015.
12. Chakrabartty, A.K., Mishra, B.K., **Bhattacharjee, D.**, Deka, R. C., Mechanistic and kinetics study of the gas phase reactions of methyltrifluoroacetate with OH radical and Cl atom, *Mol. Phys.* 111 (7), 860–867, 2013.

13. Mishra, B.K., Chakrabarty, A. K., **Bhattacharjee, D.**, Deka, R.C. Theoretical study on the kinetics and branching ratios of the gas phase reactions of 1, 1-Dichlorodimethylether (DCDME) with Cl atom, *Struct. Chem.* 24, 1621-1626, 2013.
14. Chakrabarty, A.K., Mishra, B.K., **Bhattacharjee, D.**, Deka, R. C., Theoretical study on the kinetics and branching ratios of the gas phase reactions of 4, 4, 4-Trifluorobutanal (TFB) with OH radical in the temperature range of 250- 400 K and atmospheric pressure, *J. Flour. Chem.* 154, 60-66, 2013.
15. Mishra, B.K., Chakrabarty, A. K., **Bhattacharjee, D.**, Deka, R.C., Theoretical investigation on unimolecular decomposition of malonic acid: a potential sink for ketene, *RSc. Adv.* 4, 38034–38039, 2014.
16. Mishra, B. K., Lily, M., Chakrabarty, A. K., **Bhattacharjee, D.**, Deka, R. C., Chandra, A. K. Theoretical investigation of atmospheric chemistry of volatile anaesthetic sevoflurane: reactions with the OH radicals and atmospheric fate of the alkoxy radical (CF<sub>3</sub>)<sub>2</sub>CHOCHFO: thermal decomposition vs. oxidation, *New. J. Chem.* 38, 2813-2822, 2014.

#### **Book Chapter/Other Publications**

1. Deka, P., **Bhattacharjee, D.**, Sarmah. P., Deka, R. C., Bharali, P. Catalytic reduction of water contaminant '4-nitrophenol' over manganese oxide supported Ni nanoparticles, Trends in Asian Water Environmental Science and Technology, Springer, 2017.
2. **Bhattacharjee, D.**, Gour, N.K., Mishra, B.K., Deka, R. C. Adsorption of CO by zeolite supported coinage monomers: A combined DFT and QTAIM approach, Research Trends in Chemical Sciences, Vol 4, AkiNik Publications, 2019.
3. **Bhattacharjee, D.**, 2019 borshor bosortur sobdo: 'Jolobayu joruri obosta', Kimadhikamiti, Vol I, Majuli College Publication Division, 2020.
4. **Bhattacharjee, D.**, Mario Molina: Sustho porivesor nironor swapnodorshi, *Satsori.* 16, 36-38, 2021.

#### **FDP/Refresher course/Orientation Program attended**

1. Participated in **5-days FDP** (Online mode) on 'Basics of R Programming' from April 29 to May 03, 2020 organized by Development of Computer Science and Engineering, Rajiv Gandhi University, Arunachal Pradesh in association with spoken tutorial, IIT Mumbai.
2. Participated in **a7-days FDP** (Online mode) on 'preparation of self learning materials for University and colleges' from May 12 to May 18, 2020, organized by Dibrugarh University, Assam.
3. Participated in **a7-days FDP** (Online mode) on 'The Role of Teacher in Nation Building' from August 3 to August 9, 2020, organized by Keshav Memorial Institute of Commerce and Sciences, Hyderabad, Telangana.

### Conferences/Workshops Attended

1. Attended a **two day workshop** on ‘Online basic Training on ICT in Teaching’ organized by Teaching learning centre, Tezpur University, Assam.
2. Presented a **poster** on “Computational Study of NO oxidation on Anionic Gold-Silver Dimer” in the REACH-2015: An International Symposium on Recent Advances in Chemistry, organized by Deptt. Of Chemistry, NEHU, Shillong.
3. **Oral presentation** on “Density functional study on atmospheric chemistry of HFE- 7000: reactions with OH radicals, atmospheric lifetime, and fate of alkoxy radicals” in RTERCP-2017, organized by Deptt. Of Chemistry, D. R. College, Golaghat.
4. Presented a **poster** on “Structure, Stabilities, and Electronic Properties of Small  $Au_nMg_2$  ( $n=1-5$ ) Clusters: A Density Functional Approach” in the 8<sup>th</sup> Mid-year symposium of CRSI, 2014, organised by CSIR-NEIST, Jorhat.
5. Presented a **poster** on “A DFT study of catalytic oxidation of NO by  $Au_2^-$  dimers” in the National Conference on Theoretical Physics-2013, organized by Deptt. of Physics, Tezpur University.
6. **Oral presentation** on “Computational approach on finding the nitric oxide oxidation pathway by gold catalyst” in the National Seminar on Frontiers in Science and Technology-2013, organised by Assam Science Society.
7. **Oral presentation** on “Computational studies on catalytic studies of anionic  $Au-Ag^-$  - dimer for nitric oxide oxidation” in the National Seminar on Recent Trends in Chemistry and Technology-2013, organized by Bajali College, Assam.
8. Presented a **poster** on “Cationic single gold atom catalyzed oxidation of methane:A computational approach” in the Seminar on Current Trends in Theoretical Chemistry-2013, organized by BARC, Mumbai.
9. Participated in the winter school on computational chemistry organised by School of Chemistry, University of Hyderabad.
10. Participated in the 18 days orientation program on catalysis for research scholars organised by National Centre for Catalysis Research, IIT Madras.
11. Participated in the Indo-Finish Symposium on “Role of catalyst on production of green fuel” organised by Dept. of Energy, Tezpur University.
12. Participated in the workshop on “Spectroscopic tools and their applications” organised by Dept. of Chemical Sciences, Tezpur University.
13. Participated in two days’ workshop on Modern Techniques in Molecular Biology organized by Biotech Hub, Handique Girls’ College, Guwahati, Assam.

## **Awards**

1. CSIR-JRF, June 2011(All India Ranking-63); CSIR-SRF, February 2014.
2. **Best poster award** in the National Conference on Theoretical Physics-2013, organized by Dept. of Physics, Tezpur University.
3. Visiting research fellow in **University College London, UK** during June-July, 2014 and July-August, 2015.
4. Reviewer of the peer review journal "*Journal of the Taiwan Institute of Chemical Engineers*" published by Elsevier.
5. Certificate in Computer Applications (1 year Diploma).
6. Pre-Visharad in Fine Arts.

## **Experimental and Computational Skills**

Hands-on experience in following characterization tools:

- UV-Vis spectroscopy
- FTIR spectroscopy
- Fluorescence spectroscopy

Working knowledge in following computational softwares:

Gaussian09, DMol3, AIMALL, ChemShell, Gauss View, GAMESS, Forcite Plus, VASP, ChemDraw etc.

## **Projects Completed**

1. Six months project during M. Sc. on "A brief spectroscopic study of 3-(3-aminophthaloyl)-aminopropanoic acid and 4-(3-aminophthaloyl)-aminopropanoic acid at different chemical environments" under the guidance of Dr. Sunit Kr. Gogoi, Dept. of Chemistry, Gauhati University, Assam.
2. One month project on "Phosphate status in tea soil under south bank conditions, Assam" at Tocklai Experimental Station, Tea Research Association, Jorhat, Assam.

## **Professional Experiences**

1. Working as an assistant professor in Department of Chemistry, Majuli college from 03.03.2020 onwards.
2. More than three years working experience in the quality control laboratory of ONGCL.
3. Teaching assistantship in the NET coaching program for the M. Sc. students of Tezpur University.
4. One year teaching assistantship in B. Tech and Integrated M. Sc. Courses of Tezpur

University.

5. Lecturer (contractual) in Handique Girls' College, Guwahati from 15<sup>th</sup> November, 2011 to 31<sup>st</sup> December, 2011.
6. Chemistry faculty in Luit Valley Academy, Jorhat from 1<sup>st</sup> August to 14 November, 2011.

### **Personal Details**

**Permanent Address** : H.No.:14, Progoti-Nagar, Bongal-Pukhuri, Jorhat, Assam, India.  
PIN: 785001.

**Date of Birth** : 22-01-1988.

**Gender** : Male.

**Languages Known** : English, Assamese & Hindi.

**Nationality** : Indian.

**Religion** : Hindu.

**Marital Status** : Unmarried.

### **References**

**1. Prof. Ramesh Chandra Deka**  
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University, Napaam, Tezpur-  
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**2. Prof. Richard Catlow**  
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*I do hereby declare that all the statements in this bio data are true, correct and complete to the best of my knowledge and belief.*

**Debajyoti Bhattacharjee**