CURRICULUM VITAE

MD. HARUNAR RASHID

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PERSONAL DETAILS:

Date of Birth	: 28/05/1977
Sex	: Male
Marital Status	: Married
Nationality	: Indian

PERMANENT ADDRESS:

Vill	: Puber Gaon
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EDUCATION:

Ph. D: Materials Chemistry, Indian Association for the Cultivation of Science, Kolkata (Awarded by: Jadavpur University), Dec 2009.
Title of the Thesis: Synthesis and Application of Shape Tunable Metal and Metal Oxide Nanoparticles."
Supervisor: Prof. Tarun Kumar Mandal

MSc: Chemistry (Physical Chemistry Specialization),
Gauhati University, Guwahati, February 2001.

BSc: Chemistry as Major with Phys and Math,
Gauhati University, Guwahati, 1998.

TEACHING EXPERIENCE:

Associate Professor: Rajiv Gandhi University, India; from March 2023 to till date.

Assistant Professor: Rajiv Gandhi University, India; from June 2012 to Feb 2023.

Assistant Professor: Central University of Rajasthan, India, from Aug 2011 to May 2012.

RESEARCH EXPERIENCE:

Postdoctoral Associate: Cornell University, USA, from July' 2009 to Aug'2011.

Supervisor: Prof. Emmanuel P. Giannelis

Research Topic: Fluorescence Nanoparticles Tracers for Enhanced Oil Recovery

Doctoral research: Indian Association for the Cultivation of Science, Kolkata, from Feb' 2005 to June' 2009.

Research topic: "Synthesis and Application of Shape Tunable Metal and Metal Oxide Nanoparticles."

Supervisor: Dr. Tarun Kumar Mandal

AWARDS AND FELLOWSHIP:

- ACT Prof P R Singh Award for Outstanding Contribution to Chemistry Education 2023
- Visiting Scientist at IIT Guwahati under INSA Visiting Fellowship Programme 2014 – 15.
- Visiting Fellow at NCL Pune under IASc–INSA–NASI Summer Research Fellowship 2013.
- DST–SERB Young Scientist Fellowship 2011
- Graduate Aptitude Test in Engineering (GATE), MHRD, Govt. of India.
- National Eligibility Test (CSIR-NET), Govt. of India.
- National Merit Scholarship, Govt. of India

MEMBERSHIP OF SOCIETY/ ASSOCIATION

- Life member, Association of Chemistry Teachers

RESEARCH INTEREST:

- Size and shape tunable metal oxide nanoparticles
- 2D layered double hydroxide nanomaterials
- Surface engineering of the nanostructured materials
- Use of nanomaterials in catalysis
- Use of nanomaterials in remediation of contaminated water

ONGOING RESEARCH PROJECTS

- Nil

COMPLETED RESEARCH PROJECTS

- Effect of surface modification and doping on structural, magnetic and electrical resistivity properties of $CuFe_2O_4$ nanoparticles; UGC-DAE CSR (2022-2025)
- Bio-polymer/ metal hydroxides nanocomposites for mitigating fluoride from water; SERB (2020-2023).

- Electronic structure studies of size and shape tunable magnetic ferrites and their catalytic applications, UGC-DAE CSR (2020-2023)
- Biogenic synthesis of size and shape tunable noble metal and bimetallic alloy nanoparticles for catalytic applications; CSIR (2017 – 2020).
- Designing supported metal nanocatalysts for application in C–C coupling reactions; DST-SERB (2016 – 19).
- Transition metal oxide nanoparticles for sensor applications; UGC – DAE CSR (2014 – 18).
- Design, synthesis and application of hollow metal oxide nanostructures; DST-SERB (2013 – 16).

PUBLICATIONS:

1. G. Dutta, X. Borgohain, B. Kalita, P. Bharali, Md. H. Rashid, *Facile synthesis of MgFe-layered double hydroxides (LDHs) for adsorptive removal of malachite green dye from water*, Surf. Interfaces, 2025, 72, 106930.

2. B. Kalita, S. Iraqui, M. J. Sarmah, S. Chatterjee, **Md. H. Rashid**, *Green Chemical Synthesis of Cube-Shaped $CuFe_2O_4$ Nanoparticles for Use as Magnetically Retrievable Catalysts in A^3 Coupling Reactions*, **Appl. Organomet. Chem.** 2025, 39(1), e7793.

3. R. Chowdhury, X. Borgohain, S. Iraqui, **Md. H. Rashid**, *Carboxymethyl cellulose assisted morphology controlled synthesis of Mn_3O_4 nanostructures for adsorptive removal of malachite green from water*, **Int. J. Biolog. Macromol.** 2024, **282**, 136838.

4. B. Kalita, S. Iraqui, G. Dutta, Md. H. Rashid, *Recent Developments in the Use of Spinel Ferrite Nanoparticles as Catalysts in Organic Reactions*, **Curr. Indian Sci.** 2024, **2**(1), e2210299X312557.

5. S. Iraqui, B. Kalita, **Md. H. Rashid**, *Sonochemically induced cube-shaped $NiFe_2O_4$ nanoparticles catalyzed selective oxidation of benzyl alcohol to benzaldehyde*, **New J. Chem.** 2024, **48**, 11969-11981.

6. X. Borgohain, R. Chowdhury, K. Bhuyan, **Md. H. Rashid**, *Remediation of groundwater fluoride using Cu_2O nanostructures as an efficient adsorbent*, **J. Water Proc. Eng.** 2024, **61**, 105195.

7. B. Kalita, S. Iraqui, X. Borgohain, **Md. H. Rashid**, *Ultrasonic irradiation-assisted $MnFe_2O_4$ nanoparticles catalyzed solvent-free selective oxidation of benzyl alcohol to benzaldehyde at room temperature*, **RSC Adv.** 2023, **13** (44), 30855-30868.

8. S. Iraqui, B. Kalita, R. Star, M. Gupta, and **Md. H. Rashid**, *Green synthesis of shape-tunable $CuFe_2O_4$ NPs: a magnetically retrievable and efficient catalyst for Chan–Lam type C–N coupling reactions under base-free conditions*, **New J. Chem.** 2023, **47**, 10564-10575.

9. X. Borgohain, E. Das, and **Md. H. Rashid**, *Facile synthesis of CeO_2 nanoparticles for enhanced removal of malachite green dye from an aqueous environment*, **Mater. Adv.** 2023, **4**, 683-693.

10. S. Iraqui, and **Md. H. Rashid**, *Magnetically recyclable $CoFe_2O_4$ nanoparticles as stable and efficient catalysts for the synthesis of aryl thioethers via C–S coupling reactions*, **New J. Chem**. 2022, **46**, 22766-22777.

11. X. Borgohain, and **Md. H. Rashid**, *Rapid and enhanced adsorptive mitigation of groundwater fluoride by $Mg(OH)_2$ nanoflakes*, **Env. Sci. Poll. Res.** 2022, **29**, 70056–70069.

12. T. C. Saikia, S. Iraqui, X. Borgohain and **Md. H. Rashid**, *Template-less and surfactant-less synthesis of CeO_2 nanostructures for catalytic application in ipso-hydroxylation of aryl boronic acids and the aza-Michael reaction*, **ACS Omega** 2022, **7**, 42126–42137.

13. T. C. Saikia, S. Iraqui, and **Md. H. Rashid**, *ZnO nanoparticles catalyzed C–N bond-forming reactions: A highly efficient protocol to convert electron-deficient anilines to formanilides*, **Indian J. Chem**. 2022, **61**, 573-581.

14. T. C. Saikia, S. Iraqui, and **Md. H. Rashid**, *Synergistic effect of PEG-coated ZnO nanoparticles and ultrasonic irradiation on the C–B bond cleavage of aryl boronic acids*, **Sustain. Chem. Pharm.** 2022, **25**, 100613.

15. T. C. Saikia, S. Iraqui, A. Khan and **Md. H. Rashid**, *Sapindus mukorossi seed shell extract mediated green synthesis of CuO nanostructures: An efficient catalyst for C–N bond-forming reactions*, **Mater. Adv.** 2022, **3**, 1115–1124.

16. S. Iraqui, S. S. Kashyap and **Md. H. Rashid**, *$NiFe_2O_4$ nanoparticles: An efficient and reusable catalyst for the selective oxidation of benzyl alcohol to benzaldehyde under mild conditions,* **Nanoscale Adv**. 2020, **2**, 5790 – 5802.

17. G. K. Sarma, R. Sharma, R. Saikia, X. Borgohain, S. Iraqui, K. G. Bhattacharyya and **Md. H. Rashid**, *Facile synthesis of chitosan-modified ZnO/$ZnFe_2O_4$ nanocomposites for effective remediation of groundwater fluoride*, **Env. Sci. Poll. Res.** 2020, **27**, 30067–30080.

18. X. Borgohain, A. Boruah, G. K. Sarma and **Md. H. Rashid**, *Rapid and extremely high adsorption performance of porous MgO nanostructures for fluoride removal from water*, **J. Mol. Liq.**, 2020, **305**, 112799.

19. R. Chowdhury, A. Khan and **Md. H. Rashid**, *Green synthesis of CuO nanoparticles using Lantana camara flower extract and their potential catalytic activity towards the aza-Michael reaction*, **RSC Adv.**, 2020, **10**, 14374–14385.

20. X. Borgohain, J. Yomcha, A. Khan and **Md. H. Rashid**, *Generation of anisotropic au nanostructures in aqueous carboxymethyl cellulose matrix for potential catalytic application*, **ChemistrySelect** 2019, **4**, 14253-14260.

21. G. Sarma, A. Khan, A. L. El-Toni and **Md. H. Rashid**, *Shape-tunable CuO-$Nd(OH)_3$ nanocomposites with excellent adsorption capacity in organic dye removal and regeneration of spent adsorbent to reduce secondary waste*, **J. Hazard. Mater.** 2019, **380**, 120838.

22. S. Phukan, A. Mahanta, D. Kakati and **Md. H. Rashid**, *Green chemical synthesis of Pd nanoparticles for use as efficient catalyst in Suzuki-Miyaura cross-coupling reaction*, **Appl. Organometal. Chem.** 2019, **33**, e4758.

23. S. Phukan, D. Kakati and **Md. H. Rashid**, *Use of invasive weed to synthesize shape-tunable gold nanoparticles and evaluation of their catalytic activities in dye reduction*, **Curr. Nanosci.** 2018, **14**, 511–519.

24. G. K. Sarma, and **Md. H. Rashid**, *Synthesis of Mg/Al layered double hydroxides for adsorptive removal of fluoride from water: A mechanistic and kinetic study,* **J. Chem. Eng. Data** 2018, **63**, 2957–2965.

25. S. Phukan, A. Mahanta, and **Md. H. Rashid**, *Size-tunable ZnO nanotapes as an efficient catalyst for oxidative chemoselective C–B bond cleavage of arylboronic acids,* **Appl. Catal. A** 2018, **562**, 58–66.

26. R. Chowdhury, Md. M. R. Mollick, Y. Biswas, D. Chattopadhyay, and **Md. H. Rashid**, *Biogenic synthesis of shape-tunable Au-Pd alloy nanoparticles with enhanced catalytic activities,* **J. Alloys Compd.** 2018, **763**, 399–408.

27. S. Phukan, P. Bomjen, T. Shripathi and **Md. H. Rashid**, *Green route biosynthesis of shape tunable ZnO nanostructures and their photocatalytic applications*, **ChemistrySelect** 2017, **2**, 11137–11147.

28. **Md. H. Rashid**, *Catalytically active network-like gold nanostructures: Synthesis and study of growth mechanism*, **Ind. J. Chem. A** 2017, **56A**, 1111–1121.

29. R. Chowdhury, N. Barah and **Md. H. Rashid,** *Facile biopolymer assisted synthesis of hollow SnO_2 nanostructures and their application in dye removal*, **ChemistrySelect** 2016, **1**, 4682–4689.

30. S. Phukan, P. Bharali, A. K. Das and **Md. H. Rashid**, *Phytochemical assisted synthesis of size and shape tunable gold nanoparticles and assessment of their catalytic activities*, **RSC Adv.** 2016, **6**, 49307–49316.

31. **Md. H. Rashid**, M. Raula, and T. K. Mandal, *Synthesis of magnetic nanostructures: Shape tuning by the addition of a polymer at low temperature*, **Mater. Chem. Phys.** 2014, **145**, 491–498.

32. M. Raula, D. Maity, **Md. H. Rashid** and T. K. Mandal, *In situ formation of chiral core-shell nanostructures with raspberry-like gold cores and dense organic shells using catechin and their catalytic application*, **J. Mater. Chem.** 2012, **22**, 18335–18344.

33. M. Raula, **Md. H. Rashid**, S. Lai, M. Roy, and T. K. Mandal, *Solvent-adoptable polymer Ni/NiCo alloy nanochains: Highly active and versatile catalysts for various organic reactions in both aqueous and non-aqueous media*, **ACS Appl. Mater. Interfaces** 2012, **4**, 878–889.

34. M. Biswas, E. Dinda, **Md. H. Rashid**, and T. K. Mandal, *Correlation between catalytic activity and surface ligands of monolayer protected gold nanoparticles*, **J. Colloid Interface Sci**. 2012, **368**, 77–85.

35. **Md. H. Rashid**, M. Raula, and T. K. Mandal, *Polymer assisted synthesis of chain-like cobalt-nickel alloy nanostructures: Magnetically recoverable and reusable catalysts with high activities,* **J. Mater. Chem.** 2011, **21**, 4904–4917.

36. E. Dinda, **Md. H. Rashid**, M. Biswas, and T. K. Mandal, *Redox-active ionic-liquid-assisted one-step general method for preparing gold nanoparticle thin films: Applications in refractive index sensing and catalysis*, **Langmuir** 2010, **26**, 17568 – 17580.

37. M. Raula, **Md. H. Rashid**, T. K. Paira, E. Dinda, and T. K. Mandal, *Ascorbate-assisted growth of hierarchical ZnO nanostructures: Sphere, spindle, and flower and their catalytic properties*, **Langmuir** 2010, **26**, 8769–8782.

38. E. Dinda, **Md. H. Rashid**, and T. K. Mandal, *Amino acid-based redox active amphiphiles to in situ synthesize gold nanostructures: From sphere to multipod*, **Cryst. Growth Des.** 2010, **10**, 2421–2433.

39. **Md. H. Rashid**, M. Raula, R. R. Bhattacharjee, and T. K. Mandal, *Low temperature polymer-assisted synthesis of shape-tunable zinc oxide nanostructures dispersible in both aqueous and non-aqueous media*, **J. Colloid Interface Sci.** 2009, **339**, 249–258.

40. R. R. Bhattacharjee, **Md. H. Rashid**, and T. K. Mandal, *Environmentally benign in situ synthesis of gold nanotapes using carboxymethyl cellulose*, **J. Nanosci. Nanotechnol.** 2008, **8**, 3610–3615.

41. **Md. H. Rashid**, and T. K. Mandal, *Templateless synthesis of polygonal gold nanoparticles: an unsupported and reusable catalyst with superior activity*, **Adv. Funct. Mater.** 2008, **18**, 2261–2271.

42. **Md. H. Rashid**, and T. K. Mandal, *Synthesis and catalytic application of nanostructured silver dendrites*, **J. Phys. Chem. C** 2007, **111,** 16750–16760.

43. **Md. H. Rashid**, R. R. Bhattacharjee, and T. K. Mandal, *Organic ligand-mediated synthesis of shape-tunable gold nanoparticles: An application of their thin film as refractive index sensors*, **J. Phys. Chem. C** 2007, **111,** 9684–9693.

44. **Md. H. Rashid**, R. R. Bhattacharjee, A. Kotal, and T. K. Mandal, *Synthesis of spongy gold nanocrystals with pronounced catalytic activities*, **Langmuir** 2006, **22**, 7141–7143.

45. L. Sun, S. Teng, **Md. H. Rashid**, M. Krysmann, P. Dallas, Y. Wang, B.-R. Hyun, A. C. Bartnik, G. G. Malliaras, F. W. Wise, E. P. Giannelis, *Electrogenerated chemiluminescence from carbon dots,* **Materials Research Society Symposium**, MRS Fall Meeting, 2010, 29 Nov – 3 Dec 2010, Boston, USA (*Conference Proceedings*).

46. Mazen Y. Kanj, **Md. H. Rashid**, and E. P. Giannelis, *Industry First Field Trial of Reservoir Nanoagents,* **Society of Petroleum Engineers**: MEOS 2011, 25 – 28 September 2011, Bahrain, Kingdom of Bahrain (*Conference Proceedings*).

Patents:

1. Mazen Y. Kanj, **Md. H. Rashid**, and, E. P. Giannelis, *Carbon-based Fluorescent Tracers as Oil Reservoir Nano-agents,* US Patent 9,447,682 B2 Date: Sep. 20, 2016

2. Mazen Y. Kanj, **Md. H. Rashid**, and, E. P. Giannelis, *Carbon-based Fluorescent Tracers as Oil Reservoir Nano-agents,* US Patent 9,453,159 B2 Date: Sep. 27, 2016

3. Mazen Y. Kanj, **Md. H. Rashid**, and, E. P. Giannelis, *Carbon-based Fluorescent Tracers as Oil Reservoir Nano-agents,* US Patent 9,464,034 B2 Date: Oct 11, 2016

4. Mazen Y. Kanj, **Md. H. Rashid**, and, E. P. Giannelis, *Carbon-based Fluorescent Tracers as Oil Reservoir Nano-agents,* US Patent 9,469,599 B2 Date: Oct. 18, 2016

5. Mazen Y. Kanj, **Md. H. Rashid**, and, E. P. Giannelis, *Carbon-based Fluorescent Tracers as Oil Reservoir Nano-agents,* US Patent 9,493,700 B2 Date: Nov 15, 2016

6. Mazen Y. Kanj, **Md. H. Rashid**, and, E. P. Giannelis, *Carbon-based Fluorescent Tracers as Oil Reservoir Nano-agents,* US Patent 9, 528,045 B2 Date: Dec 27, 2016

7. Mazen Y. Kanj, **Md. H. Rashid**, and, E. P. Giannelis, *Carbon-based Fluorescent Tracers as Oil Reservoir Nano-agents,* US Patent 10,047,283 B2 Date: Aug 14, 2018

8. Mazen Y. Kanj, **Md. H. Rashid**, and, E. P. Giannelis, *Carbon-based Fluorescent Tracers as Oil Reservoir Nano-agents,* US Patent 10,119, 072 B2 Date: Nov 06, 2018