

CURRICULAM VITAE

DR. TANMAY KUMAR GHORAI

Professor

Department of Chemistry

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✚ **Date of Birth** : 22nd August 1978

✚ **Professional /Teaching Experience :**

- **Member of Academic Council**, GGV, Bilaspur (17.02.2020 to till further order)
- **Head**, Dept. of Chemistry, GGV (14.02.2020 – till further notification)
- **Professor**, Dept. of Chemistry, GGV, Bilaspur, CG, India (15.01.2020)
- **Chairman of BOS & DRC**, IGNTU, Amarkantak (April 2016 – 14.01.2020)
- **Member of Academic Council**, IGNTU (April 2016 – 14.01.2020)
- **Associate Professor & Head**, Dept. of Chemistry, IGNTU, Amarkantak, MP, India (29.03.2016 – 14.01.2020)
- **Associate Professor**, Dept. of Chemistry, University of Gour Banga, Malda, W.B., India (01.08.2014 - 28.03.2016)
- **Assistant Professor**, Dept. of Chemistry, West Bengal State University, Barasat, W.B., India (17.03.2009 – 31.07.2014)
- **Lecturer in Chemistry (Assist. Prof.)**, Dept. of Chemistry, Bajkul Milani Mahavidyalaya, Bajkul, Purba Medinipur, W.B., India (06.05.2005 – 16.03.2009)
- **Assistant Teacher**, D. B. G. S. T. Institution, Keshiary, Paschim Midnapore, W.B., India, (15.07.2002 – 05.05.2005)

✚ **Academic Career :**

- **Postdoctoral Research Associate** under BOYSCAST, DST, Govt. of India, research pursuing at Department of Chemistry, University of Florida, Gainesville, Florida, USA, 2011 – 2012
- **PhD awarded on 2009** from Department of Chemistry, Vidyasagar University, Midnapore, W.B., India and whole Research work was carried out at IIT KGP

under Prof. P. Pramanik. Title of PhD Thesis: “*Studies on the Photochemical Reactions with Nano sized Inorganic Oxides*”

- M.Sc., Inorganic Chemistry (Specialization), Banaras Hindu University, 2001
- B. Sc., Chemistry Hons, Vidyasagar University under Midnapore College, 1999
- 12th Class, W.B.C.H.S.E, 1996
- 10th Class, W.B.H.S.E, 1994

✚ Award/Recognition/Fellowship:

- YOUNG SCIENTIST AWARD, DST- Fast Track Scheme, Govt. of India, 2010
- BOYSCAST Fellowship, DST, Govt. of India, 2011 – 2012
- NOMINATED TOP 100 SCIENTIST, International Biographical Centre, Cambridge, ENGLAND, 2012
- NET-CSIR, Dec. 2001
- GATE, conducted by IISc Bangalore, Feb. 2002
- Received First DST-FIST Programm@IGNTU as Convener/Coordinator, 2017-2018 for Development of Departmental Research Facility

✚ UG/PG Teaching Experience:

- UG : 8 Years
- PG : 10 Years

✚ Research Interest:

- Synthesis of transition metal based nanoparticles from herbal plant extract
- Synthesis of Oxide based Nanomaterials and application study on Photocatalysis
- Design & Synthesis of Novel Single Crystals
- Design & Synthesis of homo/heteronuclear transition/rare earth metal clusters
- Single Molecular Magnets/Magnetic Properties
- Catalysis
- Sensors
- Biological Activity

✚ Research Outcome

- Research Papers : 32
- Books (Lab Lambert Pub.) : 01
- Book Chapters (Elsevier & Wiley Pub.) : 02

- Conference Proceeding : 02
- Present in Internal Conference : 20
- Present in National Conference : 10

✚ Research Guidance:

- Master Level : 26
- PhD Awarded : 04 (02 – University of Gour Banga, Malda, WB
01 – West Bengal State University, Barasat, WB
01 – Indira Gandhi National Tribal University,
Amarkantak, MP)
- PhD Registered : 01

✚ Project Ongoing: 02

1. MPCST, A/R&D/RP-2/ Phy & Engg./2017-18/271 Amount Rs. 8,14,790/-
2. DST-FIST, SR/FST/CS-I/2017/2 Amount Rs. 112 lakhs

✚ Project Completed: 02

Sl No.	Title of The Project	Duration	Total Cost	Funding Agency
01 (PI)	Synthesis of different transition metal doped titanium dioxide $M_xNb_xTi_{1-2x}O_{2-x/2}$ (M = Cr, Fe; where x = 0.01, 0.03, 0.05, 0.1, 0.2) nanocatalysts and studied their Photocatalytic properties DST Sanctioned No: SR/FT/CS-021/2010 dated 03-Nov-2010	3/11/2010-30/5/2013	22 lakhs	DST
02 (Co-PI)	Design, Synthesis, Characterisation of Transition Metal Complexes: Feasibility study of Nanocrystalline Dye-Sensitised Solar Cell CSIR Sanc. No. 01(2537)/11/ EMR-II, Dt: 12/12/2011	12/12/2011-20/02/2015	14 lakhs	CSIR

✚ List of Project Submitted

Sl. No.	Title of the project	Name of Organization	Amount	Status
1.	Science Technology and Innovation (STI) Hub	DST, New	730 lakhs	Under

(PI)	in Natural Products Research, IGNTU Campus, Pushparajgarh (Amarkantak) Block – Anuppur, District – Madhya Pradesh State	Delhi		consideration
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✚ Training Course Attend:

- Refresher Course : **01** (UGC – Academic Staff College, Jadavpur University)
- Orientation Programme: **01** (UGC – Academic Staff College, Jadavpur University)

✚ Other Professional Activities:

➤ **Reviewer of International/National Journal**

1. ACS Journals
2. RSC Journals
3. Elsevier Journals
4. Springer Journals
5. Wiley Journals
6. Journal of Indian Chemical Society
7. Hindawi Journals

➤ **Evaluation of PhD Thesis**

1. Examined PhD Thesis: **01** (Kochin University of Science & Technology)

➤ **Co-ordinator/Convener in National Seminar**

1. National Seminar on “*Recent Developments in Chemical Sciences (RDCS-2018)*” 23-24 February 2018, IGNTU, Amarkantak
2. National Seminar on “*National Symposium on Chemical Science*” 12th March 2016, University of Gour Banga, Malda

➤ **Member of Various Professional Society/Bodies (National/International)**

1. Member of American Chemical Society, (2019-20)
2. Member of American Nano Society, USA (No. 114335, 18/04/2011)
3. Life Member of MRSI, IISc Bangalore (LMB1873, 12/04/2011)
4. Life Member of Indian Chemical Society, Kolkata (F/7276, 17/03/2011)

5. Life Member of Society for Materials Chemistry, BARC (LM 80, 15/12/2008)

Current status of PhD Awarded Students:

1. **Dr. Sayantan Pathak:** Assistant Teacher, Bhalika R.M.M.M. Vidyapith (H.S.), Bhaluka Bazar, Malda – 732125, W.B., India
Thesis Title: “*Synthesis and Characterization of New Homo/Heterometallic Transition Metal Cluster and Study on Their Single Molecule Magnetic Behaviour and Biological Activities*” (Thesis Awarded 2018)
2. **Dr. Suranjan Das:** Assistant Professor, Department of Chemistry, Govt. General Degree College at Kushmandi, Kushmandi, Dakshin Dinajpur, W.B., India.
Thesis Title: “*Designing, Synthesis and Study of Photocatalytic Effects of Semiconductor Based Nanocomposites*” (Thesis Awarded 2018)
3. **Dr. Niladri Biswas:** Assistant Professor (Contractual), Institute of Genetic Engineering, Badu, **Kolkata**-700128, WB, India
Thesis Title: “*Design, Synthesis and Characterization of Some Transition Metal Complexes*” (Thesis Awarded 2019)
4. **Dr. Mithun Kumar Ghosh:** Assistant Professor (Guest), Pt. S. N. Shukla University, MPEB Colony, Shadol, Madhya Pradesh – 484001, India
Thesis Title: “*Synthesis of new transition/rare earth metal clusters and their possible applications in Catalysis/Biological activity*” (Thesis Awarded 2020)

List of Research Publications:

2020

1. Mithun Kumar Ghosh, Kavita Jain, Siddiquie Khan, Kalpataru Das and **Tanmay Kumar Ghorai***, “A new dual functional and reusable bimetallic Y₂ZnO₄ nanocatalyst for organic transformation under Microwave/Green approach”, **ACS Omega**, Accepted, 2020. Impact Factor: 2.58. **DOI 10.1021/acsomega.9b03875**

2. Sandip Chandraker,; Mishri Lal, Mithun Ghosh, Vivek Tiwari, **Tanmay Kumar Ghorai** and Ravindra Shukla, “Green synthesis of copper nanoparticles with leaf extract of *Ageratum houstonianum* Mill.: Photocatalytic degradation of congo red and antibacterial activity” *Materials Research Express*, **2020 (Accepted)**, Impact Factor: 1.449
3. Mithun Kumar Ghosh, Santanav Giri and **Tanmay Kumar Ghorai***, “Single pot reaction of Co(III) and Ni(II) Hydrogen-bonded Organic Frameworks and Multidisciplinary Application in Dye adsorption, Separation and DNA binding”, *Journal of Molecular Structure*, **2020**, *1206*, 127727. Impact Factor: 2.011. DOI: [10.1016/j.molstruc.2020.127727](https://doi.org/10.1016/j.molstruc.2020.127727)

2019

4. Mithun Kumar Ghosh, Sayan Pathak and **Tanmay Kumar Ghorai***, “Synthesis of Two Mononuclear Schiff Base Metal (M = Fe, Cu) Complexes: MOF Structure, Dye Degradation, H₂O₂ Sensing, and DNA Binding Property”, *ACS Omega*, **2019**, *4*, 16068-16079. Impact Factor: 2.58.
5. Sandip Kumar Chandraker, Mithun Kumar Ghosh, Mishri Lal, **Tanmay Kumar Ghorai*** and Rabindra Shukla, “Colorimetric sensing of Fe³⁺ and Hg²⁺ and photocatalytic activity of green synthesized silver nanoparticles from leaf extract of *Sonchus arvensis* L.” *New Journal of Chemistry*, **2019**, *43*, 18175-18183. Impact Factor: 3.069.
6. Mithun Kumar Ghosh, Sandip Kumar Chandraker, Rabindra Shukla, Manab Mandal, Vivekananda Mandal and **Tanmay Kumar Ghorai***, “Molecular Interaction, Antimicrobial, Antioxidant, Cytotoxic and Magnetic Properties of Mn₁₂ Benzoate”, *Journal of Cluster Science*, **2019** (Accepted), Impact Factor: 2.16, doi.org/10.1007/s10876-019-01633-5
7. Sayantan Pathak, Mithun Kumar Ghosh, Manab Mandal, Vivekananda Mandal, Arnab Bhattacharyya and **Tanmay Kumar Ghorai***, “Synthesis of a new Acetate

Bridged Cu(II) Building Block Generated 1D Polymer and Studies on Structural, Magnetic, Antibacterial and Anticancer properties”, *New Journal of Chemistry*, **2019**, *43*, 2019-2029. Impact Factor: 3.069. DOI: 10.1039/C8NJ04937H

2018

8. Sayantan Pathak, Mithun Kumar Ghosh and **Tanmay Kumar Ghorai***, “Luminescence, Dye degradation and DNA binding properties of a dinuclear nona-coordinated Y(III) Complex”, *ChemistrySelect*, **2018**, *3*, 13501-13506. Impact Factor: 1.716.
9. **Tanmay Kumar Ghorai***, Suranjan Sikdar, Supriya Das, Sayantan Pathak, Sutanuka Pattanayak and Niladri Biswas, “First Time Synthesis, Characterization And Synergistic Photocatalytic Effect Of GO/Bi₂O₃/Nb₂O₅ Nanocomposites”, *Materials Today: Proceedings*, **2018**, *5*, 9760–9770. Impact Factor: 0.694.

2017

10. Sayantan Pathak, Barun Jana, Manab Mandal Vivekananda Mandal and **Tanmay Kumar Ghorai***, “Antimicrobial Activity Study of a μ_3 -oxoBridged [Fe₃O(PhCO₂)₆(MeOH)₃] (NO₃)(MeOH)₂”, *Journal of Molecular Structure*, **2017**, *1147*, 480-485. Impact Factor: 2.011
11. Sayantan Pathak, Mithun Kumar Ghosh, Barun Jana and **Tanmay Kumar Ghorai***, “(C₇H₇NO₄Mo)_n: Synthesis, Characterization and Thermal Stability of a new Oxo-bridged Helical-1D-Polymer cluster” *Journal of Molecular Structure*, **2017**, *1149*, 662-668. Impact Factor: 2.011
12. Sayantan Pathak, Barun Jana and **Tanmay Kumar Ghorai***, “[Mn(C₁₆N₂O₄H₁₁S)₂(CH₃OH)₄]: facile synthesis of a new type of Mn complex formed by extensive π - π stacking interaction”, *Journal of Indian Chemical Society*, **2017**, *94*, 1055-1062. Impact Factor: 0.145

13. Sayantan Pathak, Niladri Biswas, Barun Jana and **Tanmay Kumar Ghorai***, “Synthesis and characterization of a nano Cu₂ cluster”, *Advanced Materials Proceedings*, **2017**, 2(4), 275-279.
14. Suranjan Sikdar, Mithun Kumar Ghosh and **Tanmay Kumar Ghorai***, ‘Photocatalytic Degradation of Naphthol Orange Under Cr_{0.9}Zr_{0.1}O₂ Nanoparticles and Visible Light” *Advanced Science, Engineering and Medicine*, **2017**, 9, 713-718, Impact Factor: 1.006.
15. Suranjan Sikdar, Sutanuka Pattanayek and **Tanmay Kumar Ghorai***, “Photocatalytic degradation of rhodamine B in water by visible light irradiated BMZ nanocomposite”, *Advanced Materials Proceedings*, **2017**, 2(2), 107-112.

2016

16. **Tanmay Kumar Ghorai***, Sayantan Pathak and Suranjan Sikder, “Synthesis, Characterization and Environmental Applications: Using Metal-Niobium-Titanate {M_xNb_xTi_{1-2x}O_{2-x/2} (M = Cr, Fe; x = 0.01–0.2)} Nano-Composites”, *Advanced Science Letters*, **2016**, 22 (1), 167-174. Impact Factor: 0.117

2015

17. **Tanmay Kumar Ghorai***, “Synthesis of spherical mesoporous titaniummodified iron-niobate nanoclusters for photocatalytic reduction of 4-nitrophenol”, *Journal of Materials Research & Technology*, **2015**, 4(2), 133-143. Impact Factor: 3.327.
18. Suranjan Sikder, Sayantan Pathak and **Tanmay Kumar Ghorai***, “Aqueous Phase Photodegradation of Rhodamine B and P-nitrophenol Destruction Using Titania Based Nanocomposites”, *Advanced Materials Letters*, **2015**, 6(10), 867-873. Impact Factor: 1.15.

2013

19. **Tanmay Kumar Ghorai*** and Niladri Biswas, “Photodegradation of rhodamine 6G in aqueous solution via SrCrO₄ and TiO₂ nano-sphere mixed oxides”, *Journal of Materials Research and Technology*, **2013**, 2(1), 10-17. Impact Factor: 3.327
20. **Tanmay Kumar Ghorai*** and Prasanta Dhak, “New synthetic approach, mesoporous properties and photocatalytic activity of titania adapted chromium-niobate nanocatalysts”, *Advanced Materials Letters*, **2013**, 4(2), 121-130. Impact Factor: 1.15

2011

21. **Tanmay Kumar Ghorai***, Mukut Chakraborty and Panchanan Pramanik, “Photocatalytic performance of nano-photocatalyst from TiO₂ and Fe₂O₃ by mechanochemical synthesis”, *Journal of Alloys and Compounds*, **2011**, 509, 8158– 8164. Impact factor: 4.175.
22. **Tanmay Kumar Ghorai***, “Photocatalytic degradation of 4-chlorophenol by CuMoO₄-doped TiO₂ nanoparticles synthesized by chemical route”, *Open Journal of physical Chemistry*, **2011**, 1, 28-36. Impact Factor: 0.88

2009

23. **Tanmay Kumar Ghorai***, Susmita Pramanik and Panchanan Pramanik, “Synthesis and photocatalytic oxidation of different organic dyes by using Mn₂O₃/TiO₂ solid solution and visible light”, *Applied Surface Science*, **2009**, 255, 9026-9031. Impact Factor: 5.155

24. Soumya Kanti Biswas, **Tanmay Kumar Ghorai** and Panchanan Pramanik, "Preparation of White Pigments from Nanosized Alkaline Earth Metal Titanates and Potassium Titanium Oxo phosphate", *International Journal of Applied Ceramic Technology*, **2009**, 6 (4), 479-484. Impact Factor: 1.074

2008

25. **Tanmay Kumar Ghorai**, Debasis Dhak, Sudipta Dalai and Panchanan Pramanik, "Studies on phase formation temperature and photocatalytic properties of nano-sized solid solution of nickel molybdate and chromium-phosphate ($\text{Ni}_x\text{Cr}_{1-x}\text{Mo}_x\text{P}_{1-x}\text{O}_4$), *Applied Catalysis A: General*, **2008**, 339, 137-144. Impact Factor: 4.630
26. **Tanmay Kumar Ghorai**, Debasis Dhak, Sudipta Dalai and Panchanan Pramanik, "Preparation and photocatalytic activity of nano-sized nickel molybdates (NiMoO_4) doped bismuth titanate ($\text{Bi}_2\text{Ti}_4\text{O}_{11}$) (NMBT) composite", *Journal of Alloys and Compounds*, **2008**, 463, 390-397. Impact Factor: 4.175
27. **Tanmay Kumar Ghorai***, Soumya Kanti Biswas and Panchanan Pramanik, "Photooxidation of different organic dyes (RB, MO, TB, BG) using Fe(III)-doped TiO_2 nano-photocatalyst prepared by novel chemical method", *Applied Surface Science*, **2008**, 254, 7498-7504. Impact Factor: 5.155
28. **Tanmay Kumar Ghorai**, Debasis Dhak, Sudipta Dalai and Panchanan Pramanik, "Effect of Photocatalytic activities of nano-sized copper molybdate (CuMoO_4) doped bismuth titanate ($\text{Bi}_2\text{Ti}_4\text{O}_{11}$)(CMBT) alloy", *Materials Research Bulletin*, **2008**, 43, 1770-1780. Impact Factor: 3.355
29. Soumya Kanti Biswas, **Tanmay Kumar Ghorai**, T. Gunushekarand P. Pramanik, "Sensing Properties of Chemically Synthesized Pristine and Pt-Impregnated Nanosized FeNbO_4 in Hydrogen, Ammonia and LPG", *Journal of The Electrochemical Society*, **2008**, 155 (1), J26-J31. Impact Factor: 3.662

30. Debasis Dhak, Prasanta Dhak, **Tanmay Kumar Ghorai**, Panchanan Pramanik, “Preparation of nano-sized $\text{ABi}_2\text{Nb}_2\text{O}_9$ ($\text{A} = \text{Ca}^{2+}, \text{Sr}^{2+}, \text{Ba}^{2+}$) ferroelectric ceramics by soluble Nb(V) tartarate precursor and their dielectric characteristics after sintering, *J Mater Sci: Mater Electron*, **2008**, *4*, 448–456. Impact Factor: 2.195.

2007

31. **Tanmay Kumar Ghorai**, Debasis Dhak, Soumya Kanti Biswas, Sudipta Dalai, and Panchanan Pramanik, “Photocatalytic oxidation of organic dyes by nano-sized metal molybdates incorporated titanium dioxide ($\text{M}_x\text{Mo}_x\text{Ti}_{1-x}\text{O}_6$) ($\text{M} = \text{Ni}, \text{Cu}, \text{Zn}; x = 0.05$) photocatalysts”, *Journal of Molecular Catalysis A:Chemical*, **2007**, *273*, 224-229. Impact Factor: 2.938
32. Debasis Dhak , Prasanta Dhak, **Tanmay Kumar Ghorai** and Panchanan Pramanik, “Dielectric diffuseness and conductivity study of CuNb_2O_6 incorporated BaTiO_3 synthesized by chemical route”, *Journal of Applied Physics*, **2007**, *102*, 074117. Impact Factor: 2.328
33. Debasis Dhak, Prasanta Dhak, **Tanmay Kumar Ghorai** and Panchanan Pramanik, “Studies of dielectric characteristics of $\text{BaBi}_2\text{Nb}_2\text{O}_9$ ferroelectrics prepared by chemical precursor decomposition method”, *Solid State Sciences*, **2007**, *9*, 57-64. Impact Factor: 2.155

2005

34. **Tanmay Kumar Ghorai**, Debasis Dhak and Panchanan Pramanik, “Investigation of phase formation temperature of nanosized solid solution of copper/ cobalt molybdate and chromium – phosphate ($\text{M}_x^I\text{Cr}_{1-x}\text{Mo}_x\text{P}_{1-x}\text{O}_4$) [$\text{M}^I = \text{Co}, \text{Cu}$]”, *Materials Science & Engineering B*, **2005**, *121*, 216–223. Impact Factor: 3.507

➤ **Reference Books/Book Chapter:**

Sl. No	Title	Author's Name	Book title and Publisher	Year of Publication
1	Graphene oxide based nanocomposites and biomedical applications	Tanmay Kumar Ghorai	Functional Polysaccharides for Biomedical Applications, Edited by Sabyasachi Maiti and Sougata Jana, Elsevier Publisher	2019 ISBN: 978-0081025550
2	Typical Synthesis and Environmental Application of Novel TiO ₂ Nanoparticles	Tanmay Kumar Ghorai	Advance Materials Series, Advanced Materials for Agriculture, Food, and Environmental Safety, Edited by Ashutosh Tiwary and Mikael Syvajarvi, Scrivener, Publishing, Wiley, USA	2014 ISBN: 978-1-118-77343-7
3	Studies on the Photochemical reactions with nanosized Inorganic oxides, PP. 1-137	Tanmay Kumar Ghorai	LAP LAMBERT Academic Publising	2011 ISBN: 978-3-8443-9519-8

Patents: Nil

Place: GGV, Bilaspur

Signature
(Dr. Tanmay Kumar Ghorai)