

## *Curriculum Vitae*

### **Dr. Uday Pratap Azad**

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### Education

- **Ph.D. Electroanalytical Chemistry (2012)** Banaras Hindu University, India.
- **Master of Science in Analytical Chemistry (2007)** Banaras Hindu University, India.
- **Bachelor of Science (Chemistry Hons.) (2005)** Banaras Hindu University, India.

### Areas of Interest/Expertise

Nano Materials, Modified Electrodes, Electrochemical Sensors, Biosensors. Electroanalytical Chemistry, Fuel Cell, Oxygen reduction, Electrochemical Water Splitting (Oxygen evolution and hydrogen evolution reactions), Energy Storage.

Teaching Experience Teaching B.Sc. and M.Sc. at Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur from 3<sup>rd</sup> October 2019 till date.

### Research Experience

- **Post-Doctoral Fellow** Pusan National University, Busan, South-Korea (1<sup>st</sup> Dec 2013 to 30<sup>th</sup> Nov 2014).
- **Post-Doctoral Fellow** Yonsei University, Seoul, South-Korea, (1<sup>st</sup> Dec 2014 to 29<sup>th</sup> Feb 2016).
- **Post-Doctoral Fellow** IIT-BHU, Varanasi, 24<sup>th</sup> Nov 2016 to 31<sup>st</sup> July 2019).

### Awards and Achievements

- CSIR-UGC NET (June 2008).
- Rajiv Gandhi National Fellowship (August 2007).
- CSIR-Senior Research Fellowship (April 2011).
- President Fellowship (December 2013 to Nov 2014), Awarded by Korean Government.
- Brain Korean Fellowship (BK-21), (Dec 2014 to Feb 2016) Awarded by Korean Government.
- National Post-Doctoral Fellowship (NPDF, 2017) Awarded by Department of Science and Technology.

*Uday Pratap Azad*

## Research Project Completed

“Development of Metal Nanoclusters/Porous Carbon Composite Based Efficient Electrocatalysts for Fuel Cell/Energy Storage and Biosensing” ([PDF/2017/002942](#)) 19.2 Lacs.

## Experimental techniques awareness:

Extensive experience in cyclic voltammetric analysis, Linear sweep voltammetry, Differential pulse voltammetry, Hydrodynamic voltammetry, Electrochemical impedance spectroscopy, AFM, TEM, SEM, XPS and powder XRD.

## Complete list of Publications

1. Efficient Sensing of Nitrite by  $\text{Fe}(\text{bpy})_3^{2+}$  Immobilized Nafion Modified Electrodes.  
**Uday Pratap Azad** and Vellaichamy Ganesan,  
*Chem. Commun.* 46 (2010) 6156-6158.
2. Yttrium Copper Titanate as a Highly Efficient Electrocatalyst for Oxygen Reduction Reaction in Fuel Cells, Synthesized via Ultrafast Automatic Flame Technique.  
L. Singh, **Uday Pratap Azad**, S. P. Singh, V. Ganesan, U. S. Rai, Y. Lee,  
*Scientific Reports* 7 (2017) 9407.
3. Studies on Some Spinel Oxides Based Electrocatalysts for Oxygen Evolution and Capacitive Applications.  
S. Pal, **Uday Pratap Azad\***, Ashish Kumar Singh\*, Dinesh Kumar and Rajiv Prakash\*, *Electrochimica Acta* 320 (2019) 134584.
4. Facile Synthesis of BSCF Perovskite Oxide as an Efficient Bifunctional Oxygen Electrocatalyst.  
**Uday Pratap Azad**, M. Singh, S. Ghosh, A. K. Singh, V. Ganesan, A. K. Singh, R. Prakash.  
*International Journal of Hydrogen Energy* 43 (2018) 20671-20679.
5. Determination of Hydrazine by PolyNi(II) Complex Modified Electrodes with a Wide Linear Calibration Range.  
**Uday Pratap Azad** and Vellaichamy Ganesan,  
*Electrochim. Acta* 56 (2011) 5766-5770.
6. Influence of Metal Nanoparticles on the Electrocatalytic Oxidation of Glucose by Poly( $\text{Ni}^{\text{II}}$ teta) Modified Electrodes.  
**Uday Pratap Azad** and Vellaichamy Ganesan,  
*Electroanalysis* 22 (2010) 575-583.

7. Tris(1,10-phenanthroline)iron(II)-Bentonite Film as Efficient Electrochemical Sensing Platform for Nitrite Determination  
**Uday Pratap Azad**, S. Turllapati, P. K. Rastogi and V. Ganesan,  
*Electrochim Acta* 127 (2014) 193-199.
8. Selective Determination of Isoniazid Using Bentonite Clay Modified Electrodes.  
**Uday Pratap Azad**, Nandlal Prajapati and Vellaichamy Ganesan,  
*Bioelectrochemistry* 101(2015) 120-125.
9. Electrocatalytic Oxidation and Sensitive Determination of Glycine at poly(Ni<sup>II</sup>teta) Modified Electrodes.  
**Uday Pratap Azad** and Vellaichamy Ganesan,  
*Sensor Letters* 11 (2013) 14901495.
10. Study of the Capacitive Behavior of MOF Derived Nanocarbon Polyhedra.  
**Uday Pratap Azad**, S. Ghosh, C. J. Verma, A. K. Singh, A. K. Singh, R. Prakash,  
*ChemistrySelect* 3 (2018) 6107-6111.
11. Fe(dmbpy)<sub>3</sub><sup>2+</sup> Immobilized Nafion<sup>®</sup> for Arsenite Determination in Water Samples.  
**Uday Pratap Azad** and Vellaichamy. Ganesan,  
*ChemElectroChem* 2 (2014) 379-383.
12. Catalytic Reduction of Organic Dyes at Gold Nanoparticles Impregnated Silica Materials: Influence of Functional Groups and Surfactants.  
**Uday Pratap Azad**, Vellaichamy Ganesan and Manas Pal.  
*J. Nanopart. Res.*13 (2011) 3951-3959.
13. Efficient Electrocatalytic Oxidation and Selective Determination of Isoniazid by Fe(tmphen)<sub>3</sub><sup>2+</sup>-Exchanged Nafion<sup>®</sup>-Modified Electrode.  
**Uday Pratap Azad** and Vellaichamy Ganesan,  
*J. Solid State Electrochem.* 16 (2012) 2907-2911.
14. Hydrophobicity Effects in Iron Polypyridyl Complex Electrocatalysis within Nafion Thin-Film Electrodes.  
**Uday Pratap Azad**, D.K. Yadav, V. Ganesan and Frank Maren,  
*Phys.Chem.Chem.Phys.* 18 (2016) 23365-23373.
15. Electrocatalytic Oxygen Reduction by Dopant free Porous Graphene Aerogel.  
**Uday Pratap Azad**, W. Choi. J.-P. Choi, D. Lee,  
*Electroanalysis* 30 (2018) 1472-1478.
16. Facile Synthesis of MoS<sub>x</sub> and MoS<sub>x</sub>-rGO Composite: Excellent Electrocatalyst for Hydrogen Evolution Reaction.  
S. Ghosh, **Uday Pratap Azad**, A. K. Singh, A. K. Singh, R. Prakash,  
*ChemistrySelect* 2 (2017) 11590-11598.
17. Photochemical Oxygen Reduction by Zinc Phthalocyanine and Silver Nanoparticles.  
M. Pal, V. Ganesn and **Uday Pratap Azad**,  
*Solid Thin Films* 525 (2012) 172-176.

18. Electrochemical Determination of Nanomolar Levels of Isoniazid in Pharmaceutical Formulation Using Silver Nanoparticles Decorated Copolymer.  
P. K. Rastogi, V. Ganesan and **Uday Pratap Azad**,  
[Electrochim Acta](#) 188 (2016) 818-824.
19. Efficient Oxygen Reduction Electrocatalysts Based on Gold Nanocluster-Graphene Composites.  
K. Kwak, **Uday Pratap Azad**, W. Choi, K. Pyo, M. Jang and D. Lee.  
[ChemElectroChem](#) 3 (2016) 1253-1260.
20. Pd@TTF Tailored Nanostructured Platform: Voltammetric Estimation of Ceftazidime.  
P. Tiwari, **Uday Pratap Azad**, S. Gupta, and R. Prakash,  
[ChemistrySelect](#) 2 (2017) 7432-7438.
21. Syntheses of Nickel Sulfides from 1, 2-bis (diphenylphosphino) Ethane Nickel (II) Dithiolates and Their Application in the Oxygen Evolution Reaction.  
A. Singh, R. Yadav, G. Kociok-Kohn, M. Trivedi, **Uday Pratap Azad**, A. K. Singh, A. Kumar.  
[International Journal of Hydrogen Energy](#) 43 (2018) 5985-5995.
22. Copper(I) Tertiary Phosphine Xanthate Complexes as Single Source Precursors for Copper Sulfide and Their Application in OER.  
A. Singh, M. Trivedi, P. Singh, G. Kociok-Kohn, **Uday Pratap Azad**, A. K. Singh. A. Kumar,  
[New J. Chem.](#), 2018, 42, 18759-18764.
23. Synthesis, Structure, Photoluminescence and Electrochemical Properties of Mononuclear Ag(I) and Polymeric Zn(II) Complexes of Potassium 4-methyl piperazine-1-Carbodithioate.  
U.K. Chaudhari, A. Bharti, P. Nath, **Uday Pratap Azad**, R. Prakash, R.J. Butcher, M.K. Bharty,  
[J. Mol. Struc.](#) 1177 (2019) 260-268.
24. Synthesis of Colloidal MoS<sub>x</sub> Nanoparticles and Their Transformation into Carbon Supported MoS<sub>2</sub> Nanocomposite.  
S. Ghosh<sup>1</sup>, **Uday Pratap Azad**, A. K. Singh,  
[AIP Conference Proceedings](#). 2142 (2019) 150025.
25. MOF Derived Co/C and Co<sub>3</sub>O<sub>4</sub>/C Polyhedron for Hydrogen Evolution Reaction.  
**Uday Pratap Azad**, Sandeep Kumar, Ashish Kumar Singh, Rajiv Prakash, A. K. Singh.  
[AIP Conference Proceedings](#). 2142 (2019) 180006.
26. Vanadium Doped Few-Layer Ultrathin MoS<sub>2</sub> Nanosheets on Reduced Graphene Oxide for High-Performance Hydrogen Evolution Reaction.  
A. K. Singh, J. Prasad, **Uday Pratap Azad**, A. K. Singh, R. Prakash, K. Singh, A. Srivastava, A. A. Alaferdov, S. A. Moshkalev.  
[RSC Advances](#) 9 (2019) 22232-22239.

## Papers Presented in Seminar/Symposium

1. Modified Electrodes Using Au<sub>25</sub> Nanoclusters for Electrochemical Sensing Applications. Mi Jang, **Uday Pratap Azad**, Eunsol Ko, Dongil Lee, 250th ACS National Meeting & Exposition, Boston, MA, United States, August 16- 20, 2015.
2. Catalytic Reduction of Proflavine by Metal Nanoparticles.  
**Uday Pratap Azad** and Vellaichamy Ganesan, *11<sup>th</sup> CRSI National symposium in Chemistry*. NCL Pune, 6-8<sup>th</sup> February, 2009.
3. Tunable Catalytic Efficiency of Metal Nanoparticles Imbedded in Silica Sol-Gel Matrix.  
**Uday Pratap Azad** and Vellaichamy Ganesan, *1<sup>st</sup> International Conference on Nanostructured Materials and Nanocomposites*, (ICNM-2009). Institute of Macromolecular Science and Engineering, Kottayam, Kerala, India. April 06-08, 2009.
4. Electrocatalytic Oxidation of Hydrazine Using Poly(Ninteta) Modified Electrode.  
**Uday Pratap Azad** and Vellaichamy Ganesan *Symposium on Modern Trends in Inorganic Chemistry-XIII*, (MTIC-XIII). Department of Inorganic & Physical Chemistry Indian Institute of Science Bangalore 560012, INDIA, JNCASR, Dec 7-10, 2009.
5. Electrocatalytic Oxidation of Glycine Using Poly(Ninteta) Modified Electrode.  
**Uday Pratap Azad** and Vellaichamy Ganesan *National conference on recent advances in Electroanalytical Techniques*. Gandhigram Rural University, Gandhigram, India. February 25-26, 2010.
6. Efficient Sensing of Nitrite by Fe(bpy)<sub>3</sub><sup>2+</sup> Immobilized Nafion Modified Electrodes  
**Uday Pratap Azad** and Vellaichamy Ganesan *International Symposium on Frontiers in Inorganic Chemistry* (FIC-2010), IACS, Kolkata India. December 11-13, 2010.
7. Determination of HSO<sub>3</sub><sup>-</sup> at Fe(tmphen)<sub>3</sub><sup>2+</sup> Encapsulated Nafion Modified Electrodes  
**Uday Pratap Azad** and Vellaichamy Ganesan National Seminar on Recent Advances in Analytical Sciences-Indian perspective (RAASI). IICT, Hyderabad, India. January 20-21, 2011.
8. Electrochemical Determination of Isoniazid at Fe(tmphen)<sub>3</sub><sup>2+</sup> Immobilized Nafion Modified Electrodes.  
**Uday Pratap Azad** and Vellaichamy Ganesan, *International Conference on Chemistry: Frontiers and Challenges* Department of Chemistry, Aligarh Muslim University, Aligarh, U. P, India. March 5-6, 2011.
9. Influence of Surfactants on the Catalytic Efficiency of Silver Nanoparticles in a Silica Sol-Gel Matrix.  
**Uday Pratap Azad** and Vellaichamy Ganesan *National Symposium on Advanced Functional Materials [NSAFM]* Department of Chemistry, Banaras Hindu University, Varanasi, U.P, India, Feb11-12, 2012.

10. Amperometric Determination of Nitrite.  
**Uday Pratap Azad** and Vellaichamy Ganesan *15<sup>th</sup> CRSI National symposium in Chemistry*, Department of Chemistry, Banaras Hindu University, Varanasi, U.P, India, January 31<sup>st</sup>-3<sup>rd</sup> February, 2013
  
11. Nitrite Determination at Fe(phen)<sub>3</sub><sup>2+</sup> Exchanged Clay Modified Electrodes.  
**Uday Pratap Azad** and Vellaichamy Ganesan INDO-US Workshop on Electrocatalytic Materials for Fuel and Biofuel Cells. Department of Chemistry, Banaras Hindu University, Varanasi, U.P, India, Feb 26- 28, 2013.
  
12. A Comparative Study on the Electrochemical Properties of Certain Organic Dyes at Different Modified Electrodes.  
R. Goswami, P. K. Rastogi, M. Pal, **Uday Pratap Azad**, S. Krishnamoorthi and V. Ganesan. *National Symposium on Emerging Trends in Chemical Sciences (ETCS-2011)* Department of Chemistry, Banaras Hindu University, Varanasi, U.P, India. February 19-20, 2011.

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