**Aditi Vatsa**

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# Research Interest

* **Synthesis, design, and characterization of polypyridine based Ruthenium catalysts**
* **Water Oxidation (Chemical, Electrochemical and Photochemical) and Dehydrogenation of formic acid.**

# Education

## Ph.D.

Chemistry (PhD submitted in December, 2021)

## Indian Institute of Technology (Indian School of Mines), Dhanbad, India

**Thesis title:** *“Catalytic Water Oxidation and Dehydrogenation of Formic Acid by Ruthenium based Molecular Catalysts”*

**M.Sc.**

Chemistry (2014), **First class with 68.12% marks**

## Department of Chemistry, University of Lucknow

## B.Sc.

Chemistry Hons. (2012), **First class with 79.2% marks**

## Institute of Science, Banaras Hindu University, Varanasi, India

# Research Skills and Professional Experience

* Working knowledge of instruments such as UV/VIS, pH, gas chromatography, Fluorescence, Electrochemical work station, Oxygen sensor, Manometer, Photochemical Reactor, FTIR.
* Familiar with the characterization techniques (DLS, XRD, FESEM, FTIR, XPS , Mass, NMR, Cyclic Voltammetry)
* Software skills: Origin, Peak fit, Electrochemical software, and the preliminary idea of REACT LAB bundle software for prediction studies

# Fellowship award

* Research Fellowship Scholarship provided by the **Ministry of Human Resource Development** of the Government of India to pursue a Ph.D. in Science in India during Feb-2015 to Feb-2020.

# Publications

1. **Vatsa, A.** and Padhi, S. K. *Catalytic Water Oxidation by a Single Site [Ru(Fc-tpy)(bpy)OH2]2+ Complex and it's Mechanistic Study*,***Inorg. Chim. Acta***, 2020, *504*, 119444. (**Invited Article in Special issue for 60th Birthday of Prof. G. K. Lahiri**).
2. **Vatsa, A.** and Padhi, S. K. *Catalytic Water Oxidation by a RuII Half Sandwich Complex*,***Eur. J. Inorg. Chem****.,*2021*, 2021(34),*3499-3505*.* ([**Highlighted in ChemViews Magazine**](https://www.chemistryviews.org/details/ezine/11316022/Ruthenium_Half-Sandwich_Complex_for_Water_Oxidation.html))
3. **Vatsa, A.** and Padhi, S. K. *Dehydrogenation of Formic Acid by a RuII Half Sandwich Catalyst* ,***ChemistrySelect*.***,*2021*, 6(35)*, 9447-9452.
4. Patel, J.; Majee, K.; Ahmad, E.; **Vatsa, A**.; Das, B.; and Padhi, S. K*. Electronic Effect on Catalytic Water Oxidation by Single Site [Ru(QCl-tpy)(bpy)(OH2)]2+ Catalyst*, ***ChemistrySelect.***, 2017, *2*, 123-129.
5. Patel, J.; Majee, K.; Raj, M.; **Vatsa, A**.; Rai, S.; and Padhi, S. K. *Effect of Quinoline Substitution on Water Oxidation by [Ru(Ql-tpy)(bpy)(OH2)](PF6)2 Catalyst*, ***ChemistrySelect*.**, 2017,*2*, 3053-3059.

# Conference

1. **A. Vatsa** and S. K. Padhi, Chemical Water Oxidation Mediated by an Efficient Single Site [Ru(QCl-tpy)(bpy)OH2]2+ Catalysts. WOC 2017, IIT(ISM) Dhanbad.
2. Conference on “Recent Advances in Materials for Substainable Enegry” (RAMSE) 2018, IIT(ISM) Dhanbad.

# Languages

Hindi and English: Read, write and speak

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# Declaration

I hereby certify that all the particulars stated above are to the best of my knowledge and believe true and fair. For any misrepresentation or omission of fact I shall be personally liable.

DATED: 28/12/2021 Aditi Vatsa