

# CURRICULUM VITAE

**Dr. PRIYA SINGH**

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<https://scholar.google.com/citations?user=Lg9DPxAAAAAJ&hl=en&authuser=2>



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**CURRENT POSITION:** Assistant Professor at HBTU, Kanpur (Contractual joined at 05 Aug 2024)

## **OBJECTIVE**

Looking for a challenging research position in a dynamic group that offers futuristic research options to contribute my expertise and expand my experimental skills and understanding of basic underlying science.

## **CURRENT RESEARCH INTEREST**

- ❖ Synthesis of Non-noble transition metal-based catalysts for sensing applications;
- ❖ Engineering of different nanostructures/morphologies of nanomaterials;
- ❖ Nanomaterials, polymers and nanocomposites synthesis and their application for development of colorimetric, electrochemical and chemiluminescence sensors.

## **RESEARCH EXPERTISE**

- ❖ **Doctor of Philosophy, School of Materials Science and Technology, Indian Institute of Technology (IIT) Varanasi (July 2017- Nov 2022)**

**Thesis Title-** *“Field deployable sensors for health monitoring using colorimetric and chemiluminescence techniques”*

**Supervisor- Prof. Rajiv Prakash**, Indian Institute of Technology (Banaras Hindu University), Varanasi, India.

- Amplified peroxidase mimetic activity by doping with Transition Metal Dichalcogenides with iron for the colorimetric detection of glutathione in human serum;
- Synthesis of a new oxidase material by using bio-waste hierarchically porous 2D carbon for the colorimetric detection of ascorbic acid;
- A kit developed using Platinum-decorated graphitic carbon nitride with enhanced oxidase activity for the colorimetric detection of Ascorbic acid based on paper strip;
- Non-invasive Glucose Testing in Urine samples based on Smartphone Camera using an enhanced chemiluminescence imaging;
- Material characterizations and analysis (structural, optical, morphological, and surface area);
- Antibody detection using Electrochemical sensing;
- Biomolecules detection using Colorimetric sensing.

❖ **Guided M-Tech student** with Thesis topic “2D materials for photocatalytic water splitting” during my PhD.

❖ **Master of Science (M.Sc), Institute of Science, BHU (2014-2016)**

**Project Title-** *“Inorganic synthesis of Nickel di-thiocarbamate complex and its characterization”*  
**Project Supervisor-** Prof. Nanhai Singh, Banaras Hindu university, U.P. India.

❖ **CSIR-Summer Research Training Program (CSIR-SRTP) Online (June to August 2020)**

**Project Title-** *“Interdisciplinary approach for precision agriculture”*

**Project Supervisor-** Dr. Prachi Srivastava, CSIR-NEST, Jorhat India.

❖ **Review the research article of Plant Nano Biology journal (Elsevier)**

### ACADEMIC SUMMARY

<u>Class</u>	<u>Board/ University</u>	<u>School/College</u>	<u>Stream/ Subjects</u>	<u>Year of Passing</u>	<u>Percentage/ CGPA</u>
<b>High School (10<sup>th</sup>)</b>	CBSE	JNV, Gajokhar Varanasi	Science	2009	80.8
<b>Intermediate (10 + 2)</b>	CBSE	JNV, Gajokhar Varanasi	Science	2011	70
<b>Bachelor of Science (B.Sc.-Hons) in PCM (Physics, Chemistry, Mathematics)</b>	Banaras Hindu University (BHU)	Mahila Mahavidyalaya, BHU	Chemistry	2014	73.6
<b>Master of Science (M.Sc.) in Chemistry</b>	BHU	Institute of Science, BHU	Chemistry	2016	72.3

<b>Doctor of Philosophy (PhD)</b>	Indian Institute of Technology (IIT), BHU	School of Materials Science and Technology, IIT BHU	Chemistry	2022	9.27/10

## AWARDS AND ACADEMIC RECOGNITIONS

**2024** Best Oral Presentation Award at the **International Conference on Recent Innovation in Biomaterials and Tissue Engineering (ICRIBTE-2024)**, December 6-7, 2024, HBTU Kanpur and Galgotias University, UP, India.

**2016** CSIR-Junior Research Fellowship, by CSIR, India with **AIR-69**.

**2017** CSIR-Junior Research Fellowship, by CSIR, India with **AIR-92**.

**2016** All India Graduate Aptitude Test in Engineering-Chemistry (GATE) fellowship, conducted by IISc Bangalore, India.

**2022** All India Graduate Aptitude Test in Engineering-Chemistry (GATE) fellowship, conducted by IIT Kharagpur, India.

**2014** IIT JAM 2014

**2017** BARC exam qualified

## INSTRUMENTATION SKILLS/ SOFTWARES EXPOSURE

- ❖ **Structural property: X-ray diffractometer (XRD)** (Rigaku Mini Flex600-Tabletop powder diffractometer); Fourier transform-infrared (FT-IR) (Thermo Scientific Nicolet 6700- FTIR spectrometer);
- ❖ **Optical property: UV-Visible Spectrophotometer**, (UV-2600, Shimadzu and Epoch BioTek);
- ❖ **Surface area measurement: BET** (MicrotracBEL Corp.);
- ❖ **Morphological study: Scanning electron microscopy** (Carl Zeiss Microscopy)
- ❖ **Electrochemical study: Multichannel potentiostat/galvanostat instrument** (Metrohm Autolab and CHI 7044);
- ❖ **Furnace: Muffle furnace, furnace with inert atmosphere;**
- ❖ **Packages:** X'Pert High Score Plus; Gauss View; ZsimpWin; NOVA 1.11; Origin 2018; MS Office; Chem Draw; Image J; XPS Peak.

## Patent: Total 02 patents

1. Filed Patent with title “**Analyte Detection Based On Enhanced chemiluminescence and Smartphone Imaging in biological Fluids and Methods Thereof**” (application no. 202111051598)
2. Filed Patent with title “**A Non-Invasive Method of Detecting**”

**n-Acetyl- $\beta$ -D- Glucosaminidase in Urine Samples and a Kit Thereof** (application no. 202211001892)

## MEMBERSHIP

**Full membership in Sigma Xi, the Scientific Honor Society (28 January 2023-Present).**

## JOURNAL PUBLICATIONS

1. **Priya Singh** et al. “Hierarchically porous 2D carbon from bio-waste: A sustainable, rapid, and efficient oxidase mimic for colorimetric detection of ascorbic acid” *Materials Advances* (2022), 3, 2749-2759. **IF- 5.36**
2. **Priya Singh** et al. “Fe-doped MoS<sub>2</sub> nanomaterials with amplified peroxidase mimetic activity for the colorimetric detection of glutathione in human serum” *Materials Chemistry and Physics* (2021), 124684 (267). **IF- 4.778.**
3. Ravi Prakash Ojha, **Priya Singh, et al.**, “A composite prepared from MoS<sub>2</sub> quantum dots and silver nanoparticles and stimulated by mercury(II) is a robust oxidase mimetic for use in the visual determination of cysteine”, *Microchimica Acta* (2019), 187(1). **IF- 6.408**
4. Ravi Prakash Ojha, **Priya Singh, et al.** “Impedimetric immune-sensor for the NS1 Dengue Biomarker based on the Gold Nanorod Decorated Graphitic Carbon Nitride modified”, *Electrochimica Acta* (2022), 140069. **IF- 7.336**
5. Rajpal, **Priya Singh, et al.** “A fluorescent Ce- EDTA probe for the sensing of ascorbic acid and lysine in real samples” *Materials Advances* (2022), 3, 7925-7936. **IF- 5.36**
6. **Priya et al.** “Smartphone-based Non-Invasive Glucose monitoring in Diabetic patients utilizing Enhanced Chemiluminescence imaging Technique” *Physica status solidi(a)* 2023. **IF-2.17**

## SUBMITTED MANUSCRIPTS

1. **Priya Singh**, Ravi Prakash Ojha, Subhajit Jana, Aniruddha Jaiswal, and Rajiv Prakash “Enhanced oxidase activity of Platinum decorated graphitic carbon nitride for the colorimetric detection of Ascorbic acid” (Communicated).
2. Ravi Prakash Ojha, **Priya Singh**, Subhajit Jana, Rajiv Prakash “Gold nanoflower decorated MoSe<sub>2</sub> modified electrode for the electrochemical detection of free cholesterol.” (Communicated).
3. Vineet Kumar Mall, Ravi Prakash Ojha, **Priya Singh**, Rajiv Prakash, “Electrochemical detection of antimalarial drug Primaquine based on gold nanorod embedded MoS<sub>2</sub> nanosheets modified electrodes” (Communicated).

## Book Chapter: 01

Published a book chapter entitled “Enzymatic Electrode–Electrolyte Interface Study During Electrochemical Sensing of Biomolecules” in John Wiley & Sons, Inc. 2020.

## Conferences: National (05+) & International (04)

- Participated in “**International Conference on Advances in Polymer Science & Technology**” February 22-25, 2023, Goa, India (APA 2023).
- Participated in the “**International Conference on Advances in Polymer Science & Technology**” November 1-3, 2018, in Kathmandu, Nepal (APA 2018).
- Participated in the “Sakura Science Exchange Program” course administered by the Japan Science and Technology Agency and run by Kyushu Institute of Technology from December 2 to December 8, 2019, Japan.
- **Participated in a poster presentation** at the **12th Japan-Korea Joint Symposium on Bio-micro Sensing Technology** (12th JKBT) and **2nd Asian Symposium on Cutting-edge Biotechnology (ASCB), 6 December 2019, Japan.**
- **Participated in a poster presentation** at the International Web Conference on Advanced Material Science & Nanotechnology (NANOMAT-2020) in June 2020.
- Participated in “Flash Talk as a part of Poster Presentation” at the International Conference on Advanced Materials for Better Tomorrow (AMBT-2021) organized by the IIT BHU, Varanasi, in association with SIRMB in 2021.

## REFERENCES

1. Dr. Rajiv Prakash  
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## Declaration:

It is hereby declared that all information furnished above is accurate to the best of my knowledge and belief.

Thanking you

With best regards



(Priya Singh)