


CURRICULUM VITAE

| Detail | Photo |
|---|---|
| <p>Name: Dr. Puspanjali Sahu Position: Assistant Professor (Teacher Education in Chemistry) Address: Department of Teacher Education Bhadrak Autonomous College Bhadrak-756001 Contact: Ph: +91-9078336869 Email: psahu.chem@gmail.com ORCID link: 0000-0003-2054-5596 Google Scholar Link: https://scholar.google.com/citations?hl=en&user=ypgwAWIAAAAJ&view_op=list_works&sortby=pubdate</p> |  |

Educational Background:

| Sl. No | Degree | University/Institution | Discipline | Year of completion |
|--------|-----------------------|---|-------------------|--------------------|
| 1 | Bachelor of Science | N. C. College, Jajpur | Chemistry (Hons.) | 2006 |
| 2 | Bachelor of Education | Radhanath Institute of Advanced Studies in Education, Cuttack | Science | 2007 |
| 3 | Master of Science | Utkal University, Bhubaneswar | Chemistry | 2009 |
| 4 | Ph.D. | CSIR-National Chemical Laboratory, Pune | Chemistry | 2015 |

Ph.D. thesis title: Understanding and Controlling of Metal Nanoparticle (Ag, Au, and Pd) Assemblies.

Professional Background:

| Sl. No | Position held | Name of the Institute | Joining | held Up to |
|--------|------------------------------|---|------------|------------|
| 1 | Assistant Professor | Bhadrak Autonomous College | 11-10-2022 | Continuing |
| 2 | Senior Project Associate | CSIR-Institute of Minerals and Materials Technology | 03-12-2020 | 30-09-2022 |
| 3 | Postdoctoral Researcher | Korea Advanced Institute of Science and Technology, Republic of Korea | 01-02-2018 | 31-05-2019 |
| 4 | Postdoctoral Researcher | Chonbuk National University, Republic of Korea | 01-07-2017 | 31-10-2017 |
| 5 | National Postdoctoral Fellow | Indian Association for the Cultivation of Science, India | 23-11-2015 | 28-04-2017 |

Research and Teaching Expertise:

- ◆ Excellent training and over 10+ years of experience in **synthesis of nanomaterials** and property analysis using various analytical techniques.
- ◆ Ability to **control and tune size and shape of nanomaterials** in order to achieve desired property.
- ◆ Ability to **control assembly pattern of nanostructures**.
- ◆ Ability to design **photo- and electro-catalyst** for production of hydrogen by water splitting.
- ◆ Design of **transparent conducting materials**
- ◆ More than **2 years of teaching experiences in pedagogy of physical sciences and Physical Chemistry**.

Awards/ Achievements and Memberships:

- ◆ *SERB-National Post-Doctoral fellowship*-July 2015, for postdoc research in India
- ◆ RF-Agnimitra best poster presenter award, 2014 (Science Day celebration) in CSIR-NCL.
- ◆ *CSIR-NET Research Fellowship* for PhD in India (Dec 2009 and June 2010) in Chemical Sciences
- ◆ *Received grant from IUSSTF for visiting Columbia University, USA*
- ◆ Best Oral Presentation, Emerging Smart Materials for Applied Chemistry (ESMAC-2021), KIIT, Odisha
- ◆ Life member of Orissa Chemical Society (id: LM/1218/22)
- ◆ Life member of Society for Materials Chemistry (Membership No. LM 1609)
- ◆ Reviewer in Bulletin in Materials Science, Springer

Publications:

Journal Articles:

1. Kalita, D., **Sahu, P.**, Manju, U., Anti-perovskites for photovoltaics: materials development and challenges, 2024, 57, 343002, Journal of Physics D: Applied Physics, <https://iopscience.iop.org/article/10.1088/1361-6463/ad4daf/meta> (ISSN- 0022-3727)
2. Kalita, D., Nandi, P., **Sahu, P.**, Schoekel, A., van Embden, J. Topwal, D., Manju, U., Dynamic Structural Evolution and Dual Emission Behavior in Hybrid Organic Lead Bromide Perovskites, 2024, 15, 2557- 2565, Journal of Physical Chemistry Letter, <https://pubs.acs.org/doi/abs/10.1021/acs.jpcelett.4c00250> (ISSN: 1948-7185)
3. Kalita, D., **Sahu, P.**, Nandi, P., Madapu K. K., Dhara, S., Schoekel, A., Mahanti, S. D. Topwal, D., Manju, U., Elucidating Phase Transitions and the Genesis of Broadband Emission in MA_{1-x}FA_xPbBr₃ Perovskites, Journal of Physical Chemistry C, 2023, 127, 24608-24617, <https://doi.org/10.1021/acs.jpcc.3c05705> (ISSN: 1932-7447)
4. Bera, S., **Sahu, P.**,*, Dutta, D., Nobile, C., Pradhan, N., P. Cozzoli, D., Partial Chemicalization of Nanoscale Metals: An Intra-Material Transformative Approach for the Synthesis of Functional Colloidal Metal- Semiconductor Nanoheterostructures, Advanced Materials, 2023, 2305985. <https://doi.org/10.1002/adma.202305985> (ISSN: 1521-4095)
5. Ranjana, M., **Sahu, P.**, Ramesh, V.V., Kumar, A.K.N., Babu, T.G.S., Kumar, D.V.R., Ethylenediamine Mediated, Environmentally Benign Synthesis of Copper Nanowires and their Catalytic Activity Towards 4-Nitrophenol

- Reduction. *Chemistry Select*, 2023, 8, p.e202204351 <https://doi.org/10.1002/slct.202204351> (ISSN:2365-6549)
6. Bommakanti, S., Puthukkudi, A., Samal, M., **Sahu, P***, and Biswal, B.P., The Synergy of Cocatalysts and Covalent Organic Frameworks for Hydrogen Evolution, *Cryst. Growth Des.*, 2023, 23, 6172-6200. <https://doi.org/10.1021/acs.cgd.3c00390> (ISSN: 1520-510X)
7. Deuri, J. K., **Sahu, P.** (Co-first author), Manju, U., In Situ Pressure Controlled Growth of ZnO Nanoparticles: Tailoring Sizes, Defects, and Optical Properties. *Inorg. Chem.* 2023, 62, 7868-7876 (IF 4.6). <https://doi.org/10.1021/acs.inorgchem.3c00586> (ISSN: 1520-510X)
8. Devika, C., **Sahu, P***, Ravi, D. V., Iodide as tool for the synthesis of Cu microplates: Understanding the change in morphology of Cu nanostructures from one dimensional nanowires to two dimensional microplates, *J. Chem. Sci.* 2022, 134, 1-7. <https://doi.org/10.1007/s12039-022-02056-y> (ISSN: 0973-7103)
9. Sen, S., Jena, R., Bera, S., Shyamal, S., **Sahu, P.**, Dutta, A., Pradhan, N., Epitaxial Orientation Angle Tuned Disk-on-Rod Nano-heterostructures for Boosting Charge Transfer *J. Phys. Chem. Lett.*, 2022, 13, 3804, <https://doi.org/10.1021/acs.jpcclett.2c00470> (ISSN: 1948-7185)
10. **Sahu, P.**, Banavoth, M., Mixed halide Perovskite Materials Title: Halide Ions Distribution and Charge Dynamics in Mixed Halide Perovskites, *Phys. Status Solidi RRL*, 2022, 2100576 (IF-2.8). <https://doi.org/10.1002/pssr.202100576> (ISSN: 1862-6270)
11. Katila, D., Dehury, J., **Sahu, P.** (Co-first author), Plasmonic nanostructure integrated two - dimensional materials for optoelectronic devices, *Journal of Physics D: Applied Physics*, 2022, 55, 243001. <https://doi.org/10.1088/1361-6463/ac5191> (ISSN- 0022-3727).
12. Sen, S., Shyamal, S., Mehetor, S. K., **Sahu, P.**, Pradhan, N., Au-Cu_{2-x}Te Plasmonic Heteronanostructure Photoelectrocatalysts, *Journal of Physical Chemistry Letter.*, 2021, 11585. <https://doi.org/10.1021/acs.jpcclett.1c03222> (ISSN: 1948-7185).
13. **Sahu, P.**, Prusty, G., Guria, A. K., Pradhan, N. Modulated Triple-Material Nano-Heterostructures: Where Gold Influenced the Chemical Activity of Silver in Nanocrystals, *Small*, 2018, 14, 1801598-1. <https://doi.org/10.1002/sml.201801598> (ISSN: 1613-6829)
14. Adhikari S. D., Dutta A., Prusty, G., **Sahu, P.**, Pradhan N., Symmetry Break and Seeded 2D Anisotropic Growth in Ternary CuGaS₂ Nanocrystals, *Chem. Mater*, 2017, 29, 5384-539. <https://doi.org/10.1021/acs.chemmater.7b01775> (ISSN: 0897-4756)
15. **Sahu, P.**, Shimpi, J., Lee, H. J., Lee, T. R., Prasad, B. L. V. Digestive Ripening of Au Nanoparticles by Multidentate Ligands, *Langmuir*, 2017, 33, 1943–1950, <https://doi.org/10.1021/acs.langmuir.6b03998> (ISSN: 0743-7463)
16. **Sahu, P.**, Prasad, B. L. V. Preparation of Au Core-AgShell nanoparticles by anti-Galvanic Reactions: Are capping agents the “real heros” of reduction? *Colloids Surf. A*, 2015, 478, 30-35. <https://doi.org/10.1016/j.colsurfa.2015.03.028> (ISSN: 0927-7757)
17. **Sahu, P.**, Prasad, B. L. V., Time and temperature effect on the digestive ripening of gold nanoparticles: Is there a cross over from digestive ripening to Ostwald ripening? *Langmuir*, 2014, 30, 10143–10150. <https://doi.org/10.1021/la500914j> (ISSN: 0743-7463)
18. Chakraborty, J., Dutta, A., Prasad, B. L. V., **Sahu, P.**, Synthesis and in situ observation of 3D Superlattices of gold nanoparticles using oil-in-water emulsion, *Journal of Colloid and Interface Sci.* 2014, 420, 41-49. <https://doi.org/10.1016/j.jcis.2013.12.060> (ISSN: 0021-9797)
19. **Sahu, P.**, Prasad, B. L. V., Dilution does the trick: Role of mixed solvent evaporation in controlling nanoparticle self-assembly, *Colloids Surf. A*, 2014, 447, 142-147. <https://doi.org/10.1016/j.colsurfa.2014.01.070> (ISSN: 0927-

7757)

20. **Sahu, P.**, Prasad, B. L. V., Fine control of nanoparticle sizes and size distributions: temperature and ligand effects on the digestive ripening process, *Nanoscale*, 2013, 5, 1768-1771 (Cover page Article). <https://doi.org/10.1039/C2NR32855K> (ISSN: 2040-3372)

21. **Sahu, P.**, Prasad, B. L. V., Effect of digestive ripening agent on nanoparticle size in the digestive ripening process, *Chem. Phys. Lett.* 2012, 525-526, 101-104. <https://doi.org/10.1016/j.cplett.2011.12.078> (ISSN: 0009-2614)

Book Chapters

1. **P. Sahu**, J. Shimpi, and B. L. V. Prasad, Molecular Tools for Controlling Nanoparticle Size/Morphologies in *Molecular Materials: Preparation, Characterization, and Applications*, 2017, 189-211, Taylor & Francis Group, 6000 Broken Sound Parkway NW, Suite 300, Boca Raton, FL 33487-2742 CRC Press. (Book Chapter) ISBN: 9781315118697, DOI: <https://doi.org/10.1201/9781315118697>

2. **P. Sahu**, U. Manju, and S. Palei, Metal-Organic Frameworks and its Derived Materials for CO₂ Reduction in *Electrochemical applications of Metal-Organic frameworks Advances and Future potential* (chapter -5) Elsevier, 2022, 95-116, 2022 (ISBN: 9780323907842) DOI: <https://doi.org/10.1016/B978-0-323-90784-2.00003-4>

3. A. Priyadarshani, **P. Sahu**, U. Manju, and R. Sahu, "Analytical performance of electrochemical sensor based on metal-organic frameworks" in the book "Electrochemical applications of Metal-Organic frameworks Advances and Future potential" (chapter-6) Elsevier, 2022, 117-133, 2022 (ISBN: 9780323907842). DOI: <https://doi.org/10.1016/B978-0-323-90784-2.00005-8>

4. **P. Sahu** and S. Palei, "Lead free metal halide perovskites for solar energy" in *Advances in Electronic Materials for Clean Energy Conversion and Storage Applications* (chapter 9) Elsevier; 2023, 189-222, 2023. (ISBN: 9780323912068) DOI: <https://doi.org/10.1016/B978-0-323-91206-8.00008-X>

5. P. Sahu and S. Palei, "Application of perovskites in solar cells" in *Perovskite Metal Oxides* (chapter19), Elsevier; 2023, 485-517, 2023 (ISBN: 9978-0-323-99529-0) DOI: <https://doi.org/10.1016/B978-0-323-99529-0.00025-4>

Magazine Publication:

1. P. Sahu, *Nanomaterials: Small things have big impact*, Vijetree, Science Special Edition, 2024

FDP/ Refresher Courses

1. Online Refresher Course in Chemistry on 'Frontiers in Chemistry' from 24.10.2024 to 6.11.2024

Conferences, Workshops

Convener

- ◆ Two days National Seminar on New Trends in Chemical Sciences organized by Department of Chemistry, Bhadrak (Autonomous) College, 12-13 April 2023.

Attended (Talks and Poster presentations)

- ◆ Chemical Research Society of India (CRSI)-zonal meeting, May 2011, CSIR National Chemical Laboratory, Pune, India.
- ◆ International conference on electron microscopy, July 2011, Hyderabad, India.
- ◆ Indo-US Bilateral Workshop on Nanoparticle Assembly: From Fundamentals to Applications symposium, December 2011, Delhi, India.

- ◆ Workshop on particle size analysis and colloidal stability using DLS: Nano to Micro, August 2012, CSIR-National Chemical Laboratory, Pune, India.
- ◆ Korean Chemical Society Conference, October 2017, Daejeon, Republic of Korea
- ◆ International conference on emerging smart materials on applied chemistry, 10-12th August 2020, KIIT Deemed to be university, Odisha, India (Invited speaker)
- ◆ National workshop on upcoming research and development challenges for chemical engineers, 26-27th August 2021, S. N. Patel Institute of Technology and Research Center, Gujarat (Expert speaker)
- ◆ International conference on emerging smart materials on applied chemistry, 3rd -5th December 2021, KIIT Deemed to be university, Odisha, India (Oral Presenter)
- ◆ India Chemical Engineering Congress (CHEMCON), 26-30th December, CSIR-IMMT, Bhubaneswar

Mentoring experiences:

- ◆ Mentored 15 Graduate and Masters students of Department of Chemistry.
- ◆ Mentored B.Ed. students for school internship