

NOWROSJEE WADIA COLLEGE, PUNE

FACULTY ACADEMIC PROFILE



DR. SUPRIYA RAVINDRA PATADE Assistant Professor (Ad-hoc)
MSc Ph.D.
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PROFESSIONAL SNAPSHOT

My profile includes teaching B.Sc. and M.Sc. Physics and carrying out research in Materials Science. My present work is centered on ferrite-based nanostructures, their water-based suspensions and their suitability for magnetic hyperthermia. My teaching approach focuses on, to simplify difficult topics, correlate them with laboratory observations and day-to-day examples. I am handling courses like Research Methodology, Material science, Synthesis of Nanomaterials and Thin Films Laboratory. I encourage students to cultivate scientific curiosity, analytical thinking and research aptitude. My key contribution lies in connecting fundamental Physics with nanomaterials research for biomedical applications, particularly heat generation for hyperthermia.

EDUCATION

Qualification	University / Institution		Year
Ph.D	Dr. Babasaheb Ambedkar	Marathawada University Chhatrapati Sambhajnagar	2022
M.Sc.	Dr. Babasaheb Ambedkar	Marathawada University Chhatrapati Sambhajnagar	2014
B.Sc.	Dr. Babasaheb Ambedkar	Marathawada University Chhatrapati Sambhajnagar	2012

TEACHING & ACADEMIC INTERESTS

• Electronics • Material Science • Biophysics

RESEARCH & PUBLICATIONS

Research Area: Material science, Ferrite Nanomaterials, Nanofluids, Magnetic Fluid Hyperthermia

Selected Publications:

- Patade, S. R.,** Andhare, D. D., Kharat, P. B., Humbe, A. V., & Jadhav, K. M. (2020). Impact of crystallites on enhancement of bandgap of $Mn_{1-x}Zn_xFe_2O_4$ ($1 \geq x \geq 0$) nanospinels. Chemical Physics Letters, 745, 137240. (IF-3.1)
Research Profile: [ORCID / Google Scholar / institutional profile — optional]
- Patade, S. R.,** Andhare, D. D., Khedkar, M. V., Jadhav, S. A., & Jadhav, K. M. (2021). Synthesis and characterizations of magnetically inductive Mn–Zn spinel ferrite nanoparticles for hyperthermia applications. Journal of Materials Science: Materials in Electronics, 32(10), 13685-13692. (IF-3.2)
- Patade, S. R.,** Andhare, D. D., Somvanshi, S. B., Kharat, P. B., More, S. D., & Jadhav, K. M. (2020). Preparation and characterisations of magnetic nanofluid of zinc ferrite for hyperthermia. Nanomaterials and Energy, 9(1), 8-13. (IF-0.8)

4. **Patade, S. R.**, Andhare, D. D., Somvanshi, S. B., Kharat, P. B., & Jadhav, K. M. (2020, November). Effect of zinc doping on water-based manganese ferrite nanofluids for magnetic hyperthermia application. In AIP Conference Proceedings (Vol. 2265, No. 1, p. 030557). AIP Publishing LLC.
5. Somvanshi, S. B., **Patade, S. R.**, Andhare, D. D., Jadhav, S. A., Khedkar, M. V., Kharat, P. B., ... & Jadhav, K. M. (2020). Hyperthermic evaluation of oleic acid coated nano-spinel magnesium ferrite: enhancement via hydrophobic-to- hydrophilic surface transformation. *Journal of Alloys and Compounds*, 835, 155422. (IF-6.7)
6. Andhare, D. D., **Patade, S. R.**, Kounsalye, J. S., & Jadhav, K. M. (2020). Effect of Zn doping on structural, magnetic and optical properties of cobalt ferrite nanoparticles synthesized via. Co-precipitation method. *Physica B: Condensed Matter*, 583, 412051. (IF-2.8)
7. Andhare, D. D., **Patade, S. R.**, Jadhav, S. A., Somvanshi, S. B., & Jadhav, K. M. (2021). Rietveld refined structural, morphological, Raman and magnetic investigations of superparamagnetic Zn–Co nanospinel ferrites prepared by cost-effective co-precipitation route. *Applied Physics A*, 127(6), 1-13. (IF-3)
8. Andhare, Deepali D., Supriya R. Patade, Mangesh V. Khedkar, Asha A. Nawpute, and K. M. Jadhav. "Intensive analysis of uncoated and surface modified Co-Zn nanoferrite as a heat generator in magnetic fluid hyperthermia applications." *Applied Physics A* 128, no. 6 (2022): 1-12. (IF-3)
9. Bajaj, Shakti, P. A. Keche, **S. R. Patade**, V. M. Khedkar, and Sangita Shinde. "Structural properties of CoFe₂-xCeXO₄ (x= 0.00 and 0.02) nanoparticles using XRD and FTIR analysis." *Int. J. Adv. Manuf. Technol* 3 (2020): 524-531. (IF-3.5)
10. More, Smita P., Swapnil A. Jadhav, **Supriya R. Patade**, Sanjay B. Gopale, R. J. Topare, and K. M. Jadhav. "Phase transformation, morphology, DC electrical resistivity and dielectric properties investigations of properties of manganese doped barium titanate nanoparticles." *Journal of Crystal Growth* 585 (2022): 126588. (IF-2.5)
11. Bharati, V. A., **Patade, S. R.**, Bajaj, S., Parlikar, R., Keche, A. P., & Sondur, V. V. (2020, October). Structural and magnetic properties of nickel ferrite nanoparticles prepared by solution combustion method. In *Journal of Physics: Conference Series* (Vol. 1644, No. 1, p. 012005). IOP Publishing.
12. Jadhav, S. A., Somvanshi, S. B., Khedkar, M. V., Patade, S. R., & Jadhav, K. M. (2020). Magneto-structural and photocatalytic behavior of mixed Ni–Zn nano-spinel ferrites: visible light-enabled active photodegradation of rhodamine B. *Journal of Materials Science: Materials in Electronics*, 31(14), 11352-11365 (IF-2.8)
13. Patil, S. V., Kshirsagar, A., Andhare, D. D., Patade, S. R., Kulkarni, G. D., & Jadhav, K. M. (2020, November). Synthesis of nanocrystalline nickel ferrite through soft chemistry method: A green chemistry approach using ginger extract. In AIP Conference Proceedings (Vol. 2265, No. 1, p. 030178). AIP Publishing LLC.
14. Kulkarni, G. D., Raut, A. V., Khedkar, M. V., Andhare, D. D., Patade, S. R., & Jadhav, K. M. (2021, September). Structural and magnetic properties of NiFe₂O₄ NPs using clove assisted green synthesis technique. In AIP Conference Proceedings (Vol. 2369, No. 1, p. 020185). AIP Publishing LLC.
15. R. D. Dudhal, S. R. Patade, D. D. Andhare, R. Paralikar, R. Chilwar, S. D. More "Influence of fuel to metal nitrate ratio on the structural properties of nickel ferrite" *Journal of Physics: Conference Series* 1644 (1), 012011.
16. Kulkarni, G. D., Patade, S. R., Parlikar, R. R., Gopale, S. B., Chilwar, R. R., Saraf, T. S., & Jadhav, K. M. (2020). Green synthesis of NiFe₂O₄ nanoparticles using different fuels and their structural characterization. *Journal of Physics: Conference Series*, 1644(1), 012003.

Research Profile: <https://scholar.google.com/citations?user=Fs2TiqUAAAAJ&hl=en>

ACHIEVEMENTS & PROFESSIONAL DEVELOPMENT

- Recipient of State Governments Eklavya Scholarship, 2013-14.
- Recipient of State Government's Chhatrapati Shahu Maharaj National Research (SARTHI) Fellowship, 2019-2022
- Participated in the 'MS-DEED Level 1 Workshop: A Faculty Development Programme on Introduction to Innovative Pedagogies for College Teachers by IISER Pune and MSFDA.
- Participated in the NEP 2020 Orientation and Sensitization Programme under Malaviya Mission Teacher Training Programme (MM-TTP) of UGC

NATIONAL / INTERNATIONAL CONFERENCES, WORKSHOP ATTENDED

1. **Patade, Supriya R. et. al.** "Effect of zinc doping on water-based manganese ferrite nanofluids for magnetic hyperthermia application" **64th DAE-Solid State Physics Symposium (DAE-SSPS)** December 18 -22, 2019, held at **Indian Institute of Technology, Jodhpur, Rajasthan, India.**
2. **Patade, Supriya R. et. al.** "Preparation and characterizations of magnetic nanofluid of zinc ferrite for hyperthermia" **4th International conference NANOCON 018- Nanotechnology: Applications, Advances and Innovations**, organized by **Bharti vidyapeeth (Deemed to be university) college of engineering, Pune** held at 26th October, 2018.
3. **Patade, Supriya R.,** "Magnetic Fluid Hyperthermia Study Of Water Dispersible Zinc Substituted Manganese Ferrite ($Mn_{0.5}Zn_{0.5}Fe_2O_4$) Ferrofluids" **National e-conference on Recent Advances in Materials Science & Nanotechnology** Organized by **Yeshwantrao Chavan College of Arts, Commerce & Science Sillod, Dist. Aurangabad**, on 1st & 2nd August 2020.
4. **Patade, Supriya R.** "Magnetic Fluid Hyperthermia Study of Water Dispersible Zinc Substituted Manganese Ferrite Ferrofluids" **International Web Conference on Science, Engineering and Technology** organized by **Society for technologically advanced materials of India (STAMI).**
5. **Patade, Supriya R.,** "Preparation and Characterizations of Manganese Ferrite for Hyperthermia Applications" presented in online **International Conference on Material Science and Nanotechnology (e-ICMSN-2020)** organized by **Dayanand science college Latur** held on 17-19 December, 2020.
6. Attended the **"64th DAE SOLID STATE PHYSICS SYMPOSIUM"** organized by: Bhabha Atomic research center, Mumbai and Sponsored by Board of research in nuclear science (BRNS), Department of atomic energy, government of India, held at **Indian Institute of Technology, Jodhpur, Rajasthan, India** during December 18-22, 2019.
7. Participated the International course on **"Advanced Electron Microscopy for Material Science"** organized by Global initiative of academic networks (GIAN) and sponsored by **Jawaharlal Nehru University, New Delhi** 13th-22nd March 2018.
8. Attended the National conference on **"Nanostructured Materials and Nanotechnology"** organized by **Shri Muktanand College, Gangapur, Dist. Aurangabad, Maharashtra (Pin-431109)** on 1st December 2018
9. Attended the State level workshop on **"E-Content Development in Perspective of Teaching"** organized by **Department of Physics, Deogiri college, Aurangabad and Knowledge Bridge, Ahmednagar** on 22nd – 23th December 2018.

10. Attended the One-day webinar on “**Raman Spectroscopy**” organized by **ICT Mumbai Campus Jalna** in Association with **LABINDIA Instruments** held on 20th December 2021.
11. Attended the **National level Webinar on Research and Research Methodology** organized by **department of physics, Sunderrao Solanke Mahavidyalaya, Majalgaon, Dist. Beed (M.S.) India** held on 31st December 2021.
12. Participated in the **National conference on Advances in material science and Emerging Technologies (NCAMSET-2026)** organized by Department of physics, postgraduate teaching and Research Centre **Sir Parshurambhau College Pune** held on **28 and 29 January 2026**.

BOOKS

1. *Advanced Practical Handbook for Preparation of Thin Film and Nanoparticles* by **Dr. Supriya R. Patade**, Mr. Akshay U. Sonavane, Dr. Mangesh V. Khedkar and Dr. Deepak A. Tonpe.
2. *Characterization Techniques for Nanomaterials* by Dr. Mangesh V. Khedkar Dr. Deepak A. Tonpe and **Dr. Supriya R. Patade**.
3. *Growth and Optoelectronic Properties of Organic-Inorganic Nanocomposite for Technological Application* by Dr. Deepak A. Tonpe Dr. Mangesh V. Khedkar **Dr. Supriya R. Patade** and Dr. Ramphal Sharma.

TECHNICAL SKILLS & EXPERTISE

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| • Material Synthesis | • Chemical, Physical and Biological routes |
| | • Sol-Gel auto combustion*, Chemical Co-precipitation* |
| • Characterizations | • X-ray diffraction, FTIR, RAMAN, VSM, FESEM-EDAX, HRTEM-SAED, TG-DTA, Induction heating, FCZFC |
| • Data Analysis (Softwares) | • OriginLab, PowderX, ImageJ, FullProf Suite, ChemDraw |
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