



Dr. NAMRATA AJITRAO NAREWADIKAR

M.Sc. Ph.D.

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## DETAILS

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### Languages

English, Hindi, Marathi

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Indian

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## EDUCATION

- **Ph.D.** in Physics (March 2023)  
Department of Physics, Shivaji University, Kolhapur - 416 004. (M.S.), India
- **M.Tech** in Energy Technology (2012)  
Department of Technology, Shivaji University, Kolhapur-416004.(M.S.), India
- **M.Sc.** in Physics (2010)  
Department of Physics, Shivaji University, Kolhapur - 416 004. (M.S.), India

## TEACHING EXPERIENCE

- **Aug 2024 -to till date** Assistant professor of Physics, Shikshanmaharshi Dr. Bapuji Salunkhe College, Miraj.
- **July 2023-to Aug 2024** Assistant professor of Physics, Vivekanand College, Tarabai park, Kolhapur.
- **July 2015 - Oct 2019** Assistant professor, Vivekanand College, Tarabai park, Kolhapur.
- **July 2013 - April 2014** Lecturer at Princess Padmaraje Girls Junior College, Kolhapur.
- **July 2011 - Dec 2012** Lecturer at Dr. Bapuji Salunkhe Institute of Engg & Technology, Kolhapur.

## RESEARCH EXPERIENCE

- **Ph.D.** Thesis Title "**Photoelectrocatalytic activity of doped titanium dioxide for degradation of organic compound**".
- **M.Tech** Project Title "**Influence of carbon nanotube on the performance of silicon solar cell**"

## FELLOWSHIP

The awardee of Chief Minister Special Research Fellowship (**CMSRF**) - 2019 of SARATHI, PUNE Maharashtra, India.

## PUBLICATIONS

1. Spray deposited Yttrium incorporated  $\text{TiO}_2$  photoelectrode for efficient photoelectrocatalytic degradation of organic pollutants. Narewadikar N. A., Pedanekar R. S., Parale V. G., Park H. H., Rajpure K. Y., *J. Rare Earths*, **2022**, In press. DOI: 10.1016/j.jre.2022.11.013
2. Sunlight assisted novel spray deposited  $\text{Bi}_2\text{WO}_6$  photoelectrode for degradation of organic pollutants. Suryavanshi R. D., Babar P. V., Narewadikar N. A., Rajpure K. Y., *J Phys Chem Solids*, **2022**, 168, 110786. DOI: 10.1016/j.jpics.2022.110786

## SKILLS

### Computer proficiency

Chemdraw, Origin,  
Zotero, Mendeley

### Technical

### Knowledge/Handled

XRD, UV visible  
Spectroscopy,  
Battery cyler  
etc. Centrifuge,  
spin coater,  
Spray pyrolysis  
unit

3. The influence of nickel substitution on the structural and gas sensing properties of sprayed ZnFe<sub>2</sub>O<sub>4</sub> thin films. Madake S. B, Patil A. R., Pednekar R. S., Narewadikar N. A., Thorat J. B., Rajpure K. Y., *J. Mater. Sci.: Mater. Electron.*, **2022**, 33, 6273–6282. DOI: 10.1007/s10854-022-07802-z
4. Photoelectrocatalytic degradation of Rhodamine B by spray deposited Bi<sub>2</sub>WO<sub>6</sub> photoelectrode under solar radiation. Pednekar R. S., Madake S. B., Narewadikar N. A., Mohite S. V., Patil A. R., Kumbhar S. M., Rajpure K. Y., *Mater. Res. Bull.*, **2022**, 147, 111639. DOI: 10.1016/j.materresbull.2021.111639
5. Study on effect of deposition temperature on photoelectrocatalytic performance of immobilized TiO<sub>2</sub>. Narewadikar, N.A., Rajpure, K. Y., *Chem. Phys. Lett.*, **2022**, 787, 139279. DOI: 10.1016/j.cplett.2021.139279
6. Recent advancement in doped Titanium dioxide (TiO<sub>2</sub>) nanostructures for photocatalytic dye degradation. Narewadikar, N.A., Rajpure, K. Y., *Nanobiotechnology reports*, **2022**, 17, 39–58. DOI: 10.1134/S2635167622010104
7. Enhanced Photoelectrocatalytic degradation activity of Titanium dioxide photoelectrode: Effect of film thickness. Narewadikar, N. A., Suryavanshi, R. D., Rajpure, K. Y., *Colloid Journal (Springer)*, **2021**, 83(1), 107–115. DOI: 10.1134/S1061933X21010099

## REFERENCE PERSONS

**Prof. (Dr.) Keshav Y. Rajpure**  
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Department of Physics  
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## CONFERENCE COMMUNICATIONS

- Spray deposited Yttrium doped TiO<sub>2</sub> photoelectrode for photoelectrocatalytic degradation of organic pollutants. **University level Avishakar research convention**, 2022-23 in PPG- Pure Science, organized by School of Nanoscience and technology, Shivaji University, Kolhapur. **Poster presentation, 1<sup>st</sup> Rank.**
- Photoelectrocatalytic performance of Yttrium doped TiO<sub>2</sub> photoelectrode via spray pyrolysis technique. International E- conference on emerging trends in Nanoscience and Nanodevices, 4 May, 2022 held by Vivekanand College, Kolhapur, Maharashtra, India. **Poster presentation, 3<sup>rd</sup> Prize winner.**

## Ph.D. THESIS SUMMARY

The report on Ph.D. thesis entitled “**Photoelectrocatalytic activity of doped TiO<sub>2</sub> for degradation of organic compounds**” is summarized briefly. TiO<sub>2</sub> was synthesized at low and moderate temperature by simple, cost effective spray pyrolysis technique to degrade organic compounds to some extent. To increase the photoelectrochemical performance of TiO<sub>2</sub> doping is done. Doping with rare earth (Yttrium) and transition metal (Copper) escalates the photocatalytic performance of TiO<sub>2</sub>. It shifts the absorption edge towards higher wavelength, reduce the band gap by generating intermediate states thereby increased the photoelectrocatalytic activity. The prepared samples of pristine and doped TiO<sub>2</sub> were characterized by different characterization techniques: PEC, XRD, RAMAN,

XPS, Mott Schottky, etc. Optical properties showed slight shifting of an absorption edge towards higher wavelength. XPS showed existence of chemical oxidation state of the sample. Mott schottky exhibited increase in flat band potential to negative value which exhibits inhibition of photogenerated electron- hole pairs and suggests effective separation of charge carriers. Compared to Yttrium, Copper doping increased the photoelectrocatalytic degradation of organic compounds.

I hereby declare that the above mentioned information is genuine and true to the best of my knowledge and I bear the responsibility for the correctness of the above mentioned particulars.

Yours faithfully

**(Dr. Namrata A. Narewadikar)**