

CURRICULUM VITAE

Dr. Pravin Raghunath Jadhav

Assistant Professor,
Department of Physics,
Shri Yashwantrao Patil Science College,
Solankur, Tal: Radhanagari,
Dist: Kolhapur – 416212, Maharashtra, India

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RESEARCH PROFILE

Experimental condensed matter physicist specializing in electrochemical energy storage systems, particularly MnO_2 -based supercapacitors. Expertise in nanomaterials synthesis, thin-film deposition techniques, and electrochemical characterization. Experienced in computational studies using Density Functional Theory (DFT) with ABINIT for electronic structure and charge storage analysis.

RESEARCH INTERESTS

- Supercapacitors and electrochemical energy storage
- Transition metal oxides (MnO_2 , NiO , CuO)
- Nanostructured thin films and composites
- Electrochemical energy conversion (OER, HER)
- Density Functional Theory (DFT) simulations

ACADEMIC EXPERIENCE

- **Assistant Professor**

Department of Physics, Shri Yashwantrao Patil Science College, Solankur, Tal:- Radhanagari, Kolhapur

 21 July 2026 – Till date

- **Assistant Professor (UG & PG)**

Post-Graduate Department of Physics, Devchand College, Arjunnagar, Kolhapur

 June 2017 – March 2026

- **Assistant Professor**

School of Nanoscience and Technology, Shivaji University, Kolhapur

 January 2016 – May 2017

- **Visiting Professor**

Department of Technology, Shivaji University, Kolhapur

 July 2015 – January 2016

- **Lecturer (CHB)**
Department of Physics, Devchand College, Arjunnagar
 July 2008 – March 2011
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ACADEMIC RESPONSIBILITIES

- Internal Examiner (M.Sc. Physics & Nanoscience), Shivaji University
 - External Examiner (B.Sc. & M.Sc. Physics), Sanjay Ghodawat University
 - Paper Setter (M.Sc.), Shivaji University
 - External Examination Senior Supervisor, Shivaji University, Kolhapur.
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RESEARCH EXPERIENCE

- **Senior Research Fellow (CSIR Project)**
Department of Physics, Shivaji University, Kolhapur
 August 2012 – March 2015
 - **Project Title:**
Development of superior supercapacitors based on eco-friendly 1D copper oxide and functionalized ionic liquid.
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EDUCATION

- **Ph.D. in Physics**
Shivaji University, Kolhapur (2011–2015)
Thesis: Electrochemically deposited manganese oxide/conducting polymer composite electrodes for supercapacitors
Guide: Prof.(Dr.) P.S.Patil,
Ex. Pro. Vice-Chancellor, Shivaji University, Kolhapur,
Professor, Department of Physics, Shivaji University, Kolhapur,
Director, D.Y.Patil Education Society, Kolhapur
 - **M.Sc. Physics**
Savitribai Phule Pune University (2006–2008)
 - **B.Sc. Physics**
Shivaji University, Kolhapur (2003–2006)
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RESEARCH SKILLS

Experimental Techniques

- SEM (JEOL JSM 6300)
- XRD, BET surface analysis
- UV-Vis spectroscopy

Electrochemical Analysis

- Metrohm Autolab workstation
- Cyclic Voltammetry (CV), GCD, EIS
- Scanning Electrochemical Microscopy (SECM)

Synthesis Techniques

- Electrodeposition
- Hydrothermal synthesis
- Spray pyrolysis, Spin coating
- Chemical bath deposition

Computational Skills

- ABINIT (DFT calculations: DOS, Band structure, adsorption energy)

PUBLICATIONS

Total Publications: 22 (SCI Indexed Journals)

- Investigating the Electrocatalytic Oxygen Evolution Reaction of Hydrothermally Synthesized NiFe₂O₄ Nanoparticles, SM Bodhale, GA Bhinge, AS Gurav, AD Teli, NN Kengar, AR Vedante, **PR Jadhav**, MM Abdullah, Hasan B Albargi, Jari S Algethami, Preeti Singh, CM Kanamadi, Science of Advanced Materials 16 (6)(2024), 701-706.
- Impact of Mn doping on structural, morphological and electrical properties of bismuth oxide, AR Vedante, SK Patil, PS Mhalunge, **PR Jadhav**, CM Kanamadi, Materials Today: Proceedings, (2023),
- Enhanced specific capacitance and electrochemical properties of nickel hydroxide-activated carbon (α -Ni (OH) ₂-AC) nanocomposite for pseudocapacitor electrode material, SB Abitkar, SD Dhas, NP Jadhav, **PR Jadhav**, PS Maldar, CE Patil, AV Moholkar, Journal of Materials Science: Materials in Electronics, 32 (2021) 8657-8667

- A facile synthesis of α -Ni (OH) 2-CNT composite films for supercapacitor application, SB Abitkar, **PR Jadhav**, NL Tarwal, AV Moholkar, CE Patil, Advanced Powder Technology 30 (10)(2019) 2285-2292
- Spray synthesized hydrophobic α -Fe₂O₃ thin film electrodes for supercapacitor application PD More, **PR Jadhav**, AA Ghanwat, IA Dhole, YH Navale, VB Patil, Journal of Materials Science: Materials in Electronics 28 (2017) 17839-17848
- TOPO mediated rapid hydrothermal synthesis and study of electrochemical performance of nano-structured copper oxide thin films, AM Teli, GJ Navathe, DS Patil, **PR Jadhav**, SB Patil, TD Dongale, MM Karanjkar, Jae Cheol Shin, PS Patil, Sustainable Energy & Fuels 1 (2) (2017) 377-386
- Preparation, structural and electrochemical supercapacitive properties of sprayed manganese oxide film electrode, PD More, **PR Jadhav**, SM Ingole, YH Navale, VB Patil, Journal of Materials Science: Materials in Electronics 28 (2017) 707-714
- Nanopetals assembled copper oxide electrode for supercapacitor using novel 1-(1'-methyl-2'-oxo-propyl)-2, 3-dimethylimidazolium chloride ionic liquid as an electrolyte, DV Awale, SC Bhise, SK Patil, MM Vadiyar, **PR Jadhav**, GJ Navathe, JH Kim, PS Patil, SS Kolekar, Ceramics International 42 (2) (2016) 2699-2705
- Design and electro-synthesis of 3-D nanofibers of MnO₂ thin films and their application in high performance supercapacitor, **Pravin R Jadhav**, Mahesh P Suryawanshi, Dhanji S Dalavi, Dipali S Patil, Eun Ae Jo, Sanjay S Kolekar, Aappaso A Wali, Milind M Karanjkar, Jin-Hyeok Kim, Pramod S Patil, Electrochimica Acta, 176 (2015) 523-532.
- Development of nano fiber MnO₂ thin film electrode and cyclic voltammetry behavior modeling using artificial neural network for supercapacitor application, TD Dongale, **PR Jadhav**, GJ Navathe, JH Kim, MM Karanjkar, PS Patil, Materials Science in Semiconductor Processing 36 (2015) 43-48.
- Rapid synthesis of nanostructured copper oxide for electrochemical supercapacitor based on novel [HPMIM][Cl] ionic liquid, GJ Navathe, DS Patil, **PR Jadhav**, DV Awale, AM Teli, SC Bhise, SS Kolekar, MM Karanjkar, JH Kim, PS Patil Journal of Electroanalytical Chemistry 738(2014)170-175.

- Photoluminescence quenching of a CdS nanoparticles/ZnO nanorods core-shell heterogeneous film and its improved photovoltaic performance, SA Vanalakar, SS Mali, MP Suryawanshi, NL Tarwal, **PR Jadhav**, GL Agawane, KV Gurav, AS Kamble, SW Shin, AV Moholkar, JY Kim, JH Kim, PS Patil, Optical Materials, 37 (2014) 766-772.
- Electrochromic performance of the mixed V_2O_5 - WO_3 thin films synthesized by pulsed spray pyrolysis technique, CE Patil, NL Tarwal, **PR Jadhav**, PS Shinde, HP Deshmukh, MM Karanjkar, AV Moholkar, MG Gang, JH Kim, PS Patil, Current Applied Physics, 14 (2014) 389-395.
- One-step synthesis and characterization of anisotropic silver nanoparticles: application for enhanced antibacterial activity of natural fabric, VV Shinde, **PR Jadhav**, JH Kim, PS Patil, Journal of Materials Science, 48 (2013) 8393-8401.
- Electrochromic properties of vanadium oxide thin films prepared by PSPT: Effect of substrate temperature, CE Patil, **PR Jadhav**, NL Tarwal, HP Deshmukh, MM Karanjkar, AA Wali, PS Patil, AIP Conf. Proc. 1536 (2013) 517-518.
- Antimicrobial activity of silver nanoparticles impregnated wound dressing, VV Shinde, **PR Jadhav**, PS Patil, AIP Conf. Proc 1536 (2013) 1197-1198.
- Manganese oxide thin films deposited by SILAR method for supercapacitor application, **PR Jadhav**, VV Shinde, GJ Navathe, MM Karanjkar, PS Patil, AIP Conf. Proc., 1536 (2013) 679-680.
- Nanoflakes of beta- $Co(OH)_2$ thin film for supercapacitor application, NS Harale, NL Tarwal, **PR Jadhav**, SH Pisal, IS Mulla, VK Rao, PS Patil, AIP Conf. Proc 1536 (2013) 515-516.
- Spray deposited ZnO: Au thin films for solar cell application, NL Tarwal, NS Harale, **PR Jadhav**, PS Patil, AIP Conf. Proc. 1447 (2012) 393-394
- Photoluminescence and photoelectrochemical properties of nanocrystalline ZnO thin films synthesized by spray pyrolysis technique, NL Tarwal, VV Shinde, AS Kamble, **PR Jadhav**, DS Patil, VB Patil, PS Patil, Applied Surface Science, 257 (2011) 10789-10794.
- Electrochromic performance of mixed V_2O_5 - MoO_3 thin films synthesized by pulsed spray pyrolysis technique, CE Patil, **PR Jadhav**, NL Tarwal, HP Deshmukh, MM Karanjkar, PS Patil, Materials Chemistry and Physics 126 (2011) 711-716.

- Photoluminescence of zinc oxide nanopowder synthesized by a combustion method, NL Tarwal, **PR Jadhav**, SA Vanalakar, SS Kalagi, RC Pawar, JS Shaikh, SS Mali, DS Dalavi, PS Shinde, PS Patil, Powder Technology 208 (2011), 185-188.

PERSONAL DETAILS

- Date of Birth: 12 October 1985
- Nationality: Indian
- Gender: Male
- Marital Status: Married

DECLARATION

I hereby declare that the above information is true to the best of my knowledge.

Date:

Place:

(Dr. Pravin R. Jadhav)