

## CV of the Experienced Researcher

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**Introduction and Scientific philosophy of the ER:** Dr. Vijaykumar Jadhav is an outstanding Experienced Researcher (ER) who has demonstrated an excellent capacity for independent thinking, leadership, time-management and communication qualities throughout his undergraduate, doctoral and postdoctoral research.

His research is underpinned by the philosophy that '**Leadership is the capacity to translate vision into reality**'. Hence, he has engaged and excelled in bridging nanoscience with energy storage in international reputed groups in Asia and Europe. This, in return, has enabled him to develop as a competent and highly skilled investigator in material science especially in the physics of materials for energy storage application. The ER's contributions in the area of material science and electrochemistry have been recognized internationally through invited and keynote lectures in prestigious and exclusive scientific symposia.

**Impossible only means that you haven't found the solution yet.** This philosophy drives the ER into strong outreach and volunteering activities in various scientific, non-scientific platforms where he elaborates the societal impact of his and others' laboratory-based research to wider community. He is thus *au fait* in communicating with members of both scientific and non-scientific communities, from school science exhibition to European Materials Research Society symposiums to popularization of analytical science to school children's in INSPIRE program.

**The ER has a strong record of collaborative research in science.** In addition to his current research with Prof. Rajaram S. Mane in India (<https://sites.google.com/view/manes-nanomaterial-energy/publications>), the ER has been deeply engaged in collaborative work with the host supervisor Prof. O'Dwyer (<http://www.appliednano.ie/>), School of Chemistry, University College of Cork. The ER has performed collaborative research with an eminent scientist from Australia, Saudi Arabia, Korea, China, Ireland, and India. He also has an excellent collaboration and interactions with over 25 junior and senior colleagues in India, South Korea, China, and Ireland with whom he has co-authored his publication.

The ER has published ~ 55 peer-reviewed journal articles, **3 books**, and **3 book chapters (total citations ~ 1950, H index: 26)**, 3 invited talks and 2 oral presentations at prestigious scientific peer-conferences, received international acclaim and awards for research contributions, generated research funds in excess of >\$ 260,000, supervised students and junior researchers, and actively participated in outreach and scientific dissemination for the benefit of the wider community.

### **PREVIOUS Experience:**

Sr. No	Positions held	Name of the Institute	From	To
01	Irish Government Postdoctoral Researcher	School of Chemistry, University College Cork, Ireland	1 <sup>st</sup> January 2018	02 <sup>nd</sup> May 2019
02	Assistant Professor	Department of Physics, Shivaji Mahavidyalaya, Udgir, S.R.T.M. University, India	1 <sup>st</sup> July 2016	Till date
03	Postdoctoral Researcher	Global Frontier, Hybrid Interface Material, Pusan National University, Busan, South Korea	1 <sup>st</sup> Jan 2016	30 <sup>th</sup> Jun 2016
04	Full Time Researcher (IKRI-2015) DST-NRF	School of Material Science and Engineering, Pusan National University, Busan, South Korea	11 Oct 2014	31 Dec 2015
05	Researcher	Department of Chemistry, Hanyang University, Seoul, South Korea	1 May 2012	27 July 2012

### **PROFESSIONAL SUMMARY:**

- Passionate and skilled research scientist with a Ph.D. in Materials Science/Electrochemistry/Physics.
- Expertise in designing and executing research projects that include manufacturing and technology

transfer in multidisciplinary fields such as Energy storage, Electrochemistry, materials science, surface coating and technology, semiconductor device physics, electronics, and nanotechnology.

- Expertise in metal oxide and semiconductor-based inorganic-organic hybrid thin films/nanomaterials for Gas Sensors and energy storage devices.
- Expertise in surface analysis and characterization techniques such as PHI 5000 VersaProbe III Photoelectron Spectrometer (XPS, UPS, and LEIPS), FE-SEM, SmartLab Automated Multipurpose Rigaku X-ray Diffractometer (WAXS & SAXS), TGA/DSC, TXRF, FTIR, BET, Contact angle, Zetasizer, Ellipsometry, BioLogic Potentiostat/galvanostat/EIS.
- Expertise in Chemical Bath Deposition (CBD), Electrodeposition, Hydrothermal, Sol-gel, Chemical Vapour Deposition (CVD), Atomic Layer Deposition (ALD), SILAR, Spray pyrolysis, Spin coating, Dip Coating, Screen Printing, and 3D Printer MakerBot Replicator 2X.
- Expertise in thin film synthesis using Magnetron Sputtering (Kurt J. Lesker) and plasma ALD coating.
- Expertise in electrochemical characterization for Supercapacitor, Lithium-ion battery electrodes, and electrolyte interfaces using BioLogical potentiostat, Gamry, and Arbin multi-channel electrochemical workstations.
- Expertise in Solid-state battery, Supercapacitor, Lithium-ion battery, Chemical Gas sensor, and 3D printed rechargeable battery device fabrication.
- Experience in the synthesis of nanostructured carbon-based materials, polymer synthesis, polymer blending/composite, core-shell.
- A good team player in project management and worked with multidisciplinary international teams.
- Published **~53 peer-reviewed journal articles, 3 books**, and 3 book chapters (**total citations: ~ 1800, h-index: 24**), 3 Invited Talks, and 2 oral presentations at prestigious scientific peer-conferences, received international acclaim and awards for research contribution; generated research fund in excess of >€ 260,000; supervised students/junior researchers; and actively participated in outreach and scientific dissemination for the service of the wider community.
- The research focus is on process development and industrial applications.
- Skilled in industrial process optimization, design of experiments (DOE), problem solving, presentations, and report writing.

## **EDUCATION:**

Sr.	Degree	Year	Subject	University/Institution	% of marks
01	B.Sc. (Bachelor in Science)	2007	PHY, CHE, MATH	S. R. T. M. University, Nanded, MH, India	73.33 %, <i>First Class with Distinction</i>
02	M.Sc. (Master in Science)	2009	PHYSICS	S. R. T. M. University, Nanded, India.	8.33 (CGPA), <i>University Second topper</i>
03	NET-LS (CSIR) (National Eligible Test For lectureship)	2012	PHYSICS	CSIR New Delhi	All India Rank-360
04	Ph.D.	2015	PHYSICS	S. R. T. M. University, Nanded, India.	A, Grade
05	PET (Ph.D. entrance test)	2010	PHYSICS	S. R. T. M. University, Nanded, India.	61 %, <b>University Topper</b>

## **RESEARCH INTERESTS:**

- Next generation energy storage materials and devices for lithium and sodium ion batteries
- Design, synthesis and test of high performance battery electrode materials
- Solid state electrolytes with high conductivity and stability
- Development of flexible, transparent, ultrasensitive room-temperature gas sensors for personal and wearable technology.
- 3D-printed lithium-ion Batteries using the ink jet technique
- Synthesis of metal oxide and graphene material as anode and cathode electrodes for 3D-printed batteries
- Synthesis of MXene electrodes using ball milling and etching processes for electrochemical supercapacitor applications using aqueous-based cells
- Synthesis of Graphene by using CVD and Hummer's method for energy storage applications
- Synthesis of metal oxides and chalcogenides and composite nanostructures using a different chemical method for supercapacitors and gas sensor applications

- Synthesis of thin film using magnetron sputtering for microsupercapacitor
- ZIF-8 derived hollow carbon for lithium-ion battery and sensor application.
- Thin film synthesis using PEALD and Magnetron sputtering (semiconductor device fabrication)

## **PUBLICATIONS:**

[A total of **55** articles since 2013; Q1 Journals: 50, Q2 journals: 03. Ph.D. Awarded in 2015, Ph.D. Started 2011, **H index: 26, Total citations: ~ 1950**]

Google Scholar: [https://scholar.google.com/citations?user=xSNp\\_VMAAAAJ&hl=en](https://scholar.google.com/citations?user=xSNp_VMAAAAJ&hl=en)

ResearchGate: [https://www.researchgate.net/profile/Vijaykumar\\_Jadhav](https://www.researchgate.net/profile/Vijaykumar_Jadhav)

## **PRIZES & AWARDS:**

- **BRICS Young Scientist Fellow-2021.**  
(Among **top 20 candidates** from whole India, **Represented India**)
- The Marie Skłodowska-Curie Actions **Seal of Excellence** by the European Commission 2018.  
**Scored 90.60%** (Cut-off 90.80%).
- **Young Scientist Award** through Lindau Nobel Laureate Meeting, Lindau, Germany, during 30th June-5th July 2019. (**among top 4 candidates from whole Ireland**)
- Irish Government Postdoctoral Fellowship Award - 2016
- **Young Scientist** Awardee by Indo-Korea Internship-2015 award by the Department of Science & Technology, India and National Research Foundation of the Republic of Korea.  
(**Among top 11 candidates from whole India**)
- Excellence in Research Awards 2014-2015 by S. R. T. M. University, Nanded, India
- **Young Scientist travel awardee** by Hanyang University, Seoul, South Korea 2012
- **Ekalavya Scholarship** – 2008-2009 (during postgraduate)

## **RECOGNITION:**

- Received **O-1 USA visa status** (2023-2025, extraordinary ability).
- Received **China high talent 'R' visa for 10 years** by considering scientific achievements.
- Worked as Bentham Ambassador during 2019 to 2020.
- Working as Editorial Board Member in American Journal of Nanoscience (AJN) 2020- until date.
- Worked as a Lindau Alumni peer reviewer in the selection process of Lindau Alumni, young scientists and young economists for the interdisciplinary Next Gen Science presentations, Lindau, Germany, 2020–2021.
- Working as a reviewer for Elsevier, Springer, ACS, and Wiley publishing journals.

## **FUNDING RECEIVED:**

<b>Fellowship Grant</b>					
No	Funding body	Funding type/ Year	Amount (\$)	Country	Competition
1	University Grant Commission, New Delhi, India	2021	4000	India	National
2	Irish Research Council (IRC), <i>Ireland Government postdoctoral fellowship</i>	Postdoctoral, January 2018	1,00,000	Ireland	International
3	INJE University, Gimhae, South Korea ( <i>Respectful declined and joined contract assistant professor position in India</i> )	Postdoctoral, 2016	32,500	South Korea	International
4	GLOBAL Frontier, Hybrid Interface Material, Pusan National University, Busan, South Korea	Postdoctoral, 2016	16,000	South Korea	International
5	Department of Science & Technology, India and National Research Foundation of the Republic of Korea ( <b>DST-NRF</b> ).	Visiting Researcher Fellowship- 2015	22,000	South Korea	International
6	Government of India	Ekalavya Scholarship for Master degree-2008	500	India	National

Travel Grant					
1	Lindau Nobel Laureate meeting- <b>Young Scientist</b> , Germany	Travel & accommodation-2019 (30 June-5 <sup>th</sup> July)	5000	Lindau, Germany	International
2	International Center for Theoretical Physics (ICTP)	Travel& accommodation-2019 (12 Aug.- 30 Aug.)	4000	Trieste, Italy	International
3	International Center for Theoretical Physics (ICTP)	Travel& accommodation-2019 (13 <sup>th</sup> May-16 <sup>th</sup> May)	2000	Trieste, Italy	International
4	USPC Université Sorbonne Paris, France, MC Meet-up,	Travel-2018	500	France	International
5	<b>DST</b> , India- <b>NRF</b> , South Korea	Travel-2014	1,000	South Korea	International
6	Department of Science and Technology ( <b>DST</b> ), Govt. of India	Travel-2013	900	India	National

## **PROFESSIONAL EXPERIENCE:**

- **Visiting Scientist** (1 Sept 2023-30 Sept 2024): Department of Materials, University of Oxford, Oxford, UK.



- Gained profound insights into Professor Castell's leadership in gas sensor research with a focus on MOF materials.
- Successfully developed a comprehensive research proposal intended for submission to the EPSRC (Engineering and Physical Sciences Research Council).
- Acquired expertise in the cultivation of conducting polymers for advanced gas sensor applications.
- Specialized in the precise detection of low concentrations of ammonia and nitrous oxides.
- Conducted an in-depth study of conductometric devices, elucidating how conducting polymers dynamically alter their electrical resistance in response to gas adsorption.
- Engaged in cutting-edge research at Faraday's lab, specifically in the realm of Lithium-ion batteries, with a focus on the NMC-811 cathode electrode.

- **Materials Scientist/Manufacturing Scientist/Postdoctoral Scientist (January 2018-May 2<sup>nd</sup> 2019):**  
**University College Cork, Ireland.**



- Prestigious, stipendiary Irish Research Council Fellowship for two years, awarded based on outstanding record of accomplishment during PhD and research plans. Running independent research Projects on materials for energy harvesting from vibration.
- I worked as **Ireland Government Postdoctoral Researcher** awarded by Irish Research Council with a project entitled '3D structured high-performance materials for high energy density 3D printed Li-ion batteries'.
- Successfully Screen, test, and analyse performance and quality metrics of sample materials, designed and fabricated **3D printed rechargeable batteries**.
- Lead, Design, develop, and execute experiments for developing high-energy cathode (Lithium Rich) materials for Li-ion batteries.
- Successfully investigated various 3D nanostructure electrode material systems using various chemical route techniques and characterized by XRD, XPS, BET, FE-SEM, TEM, and AFM techniques, and optimising for high-performance materials for high energy density 3D printed Li-ion batteries.
- Design experiments for evaluating the performance of new materials being tested for Li-ion cell applications.
- Develop advanced characterisation techniques for both testing materials properties as well as battery performance.
- **Other responsibilities:** Supervising research students of our team, Project management, Weekly reports, Quarterly, and Stage gate review meetings.

- **Assistant Professor/Researcher (July 2016- till date): Department of Physics, Shivaji Mahavidyalaya, Udgir, affiliated to S.R.T.M. University, Nanded, India.**

- Successfully taught Physics theory and lab courses to undergraduate and Master Physics Students.
- Subject Taught: Mathematical Physics, Basic Electronics, Solid state Physics, and Electrodynamics.
- Other responsibilities: Project writing, Student Examination, Question and answer paper evaluations, Semester result reports, Outreach activities, and yearly meetings.



- **Materials Scientist/Manufacturing Scientist/Postdoctoral Scientist (January 2016- June 2016): Global Frontier, Hybrid Interface Material, Pusan National University, Busan, South Korea**  
I worked on the development of Asymmetric based electrochemical **Supercapacitor** projects:

- Successfully synthesized, designed and fabricated Asymmetric Supercapacitor using spinel  $MnCo_2O_4$  nanostructure working electrode and graphene as the negative electrode.
- Developed a novel and easily scaled up method using hydrothermal nanostructure electrode growth proceeding steps for the fabrication of high-quality 3D-nanostructures/nickel foam and powder.
- This method is economically viable and it is useful for large-scale production of such 3D nanostructure and thin films in the industry.
- Develop novel functional materials based on high throughput DOEs.
- Design and develop Supercapacitor active electrode materials with outstanding performance (in terms of high energy and power density), based on identifying metal oxide properties that control the size, porosity, high surface area, and stability.



- **Young Scientist/Materials Scientist/Manufacturing Scientist/Postdoctoral Scientist (Oct 2014- December 2015): School of Material Science and Engineering, Pusan National University, Busan, South Korea.**

- In this project, my proposal was funded through a rigorous competitive selection process by the **Department of Science and Technology, New Delhi, India** and **National Research Foundation, South Korea**.
- Only 11 proposals selected each year throughout India. (among **top 11** candidates from whole **India**)
- Responsible for the development of the hybrid nanostructure electrode for supercapacitor application.
- Successfully synthesized and developed perovskite-based electrochemical supercapacitor.
- Fabricated and synthesized Bismuth Ferrite composite thin film nanostructure electrode using electrodeposition technique and electrochemically characterized for Asymmetric and symmetric Supercapacitor.
- Run design of experiments (DOE) to optimize chemical formulations and process changes.
- In this period, I published eight international peer-reviewed journal papers, which resulted, out of my Ph.D. research. In addition, during this period I gained experience in writing funding proposals for national and international research grants.
- Prepare invention disclosures to protect the technology that provides a competitive advantage to the project
- Other responsibilities: Project management, Weekly reports, Monthly meeting and final report submission to DST, India and NRF Korea.



- **Ph.D. Physics/Materials Science/Electrochemistry (January 2011-May 2015): School of Physical Science, S.R.T.M University, Nanded, India.**  
**PhD Title:** “Electrochemical Supercapacitors of Bismuth, Cobalt and Bi-Co Ferrite Nanostructures”



- Developed new recipes of thin film nanostructure using electrodeposition technique using different conducting substrate such as copper plate, stainless steel, nickel and copper foam, carbon cloth.
- Featuring core/shell or interconnected core/shell architectures on stainless steel substrates using an electrodeposition method.
- Successfully fabricated and studied Mixed bismuth ferrite nanostructure electrodes for Electrochemical supercapacitor application
- Understanding surface electrochemistry and tuning key characteristics, such as the composition, the surface structure, and the morphology, as well as other factors, such as electrolyte composition and reaction condition.
- Synthesized Cobalt ferrite and Bismuth-Cobalt Ferrite mixed hybrid nanostructure electrode supercapacitor with high performance.
- Investigated the effects of annealing temperature on Nanostructure electrode.
- Detailed studied annealing effect with respect to contact angle measurement.
- Succeeded in achieving synthesis of mixed ferrite nanostructure Supercapacitor electrodes.
- Development of synthesis routes leading to high performance materials with controlled morphology and surface speciation.

▪ **Researcher** (May 2012- July 2012): Department of Chemistry, Hanyang University, Seoul, South Korea



- Worked with a multidisciplinary team of energy storage scientists and engineers to screen and develop supercapacitor components, specific focus will be on high surface area and microporous layers in membrane electrode assemblies.
- Conduct electrochemical characterization such as Cyclic-voltammetry (CV), Charge discharge (CD), Impedance measurement (EIS), stability performance

▪ **M.Sc. Physics** (June 2007- June 2009): School of Physical Science, S.R.T.M. University, Nanded, India



- Semester project: Fabricated ZnO nanorods on glass substrate using sol-gel techniques and studied their optical properties, LPG gas sensors.
- (July 2009- February 2011): During this period, I worked as a Lecturer and demonstrator in a private institution as well as a home tutor for school students in Nanded, MS, India.

**TECHNICAL SKILLS:**

**Fabrication Techniques:**

- Chemical bath deposition (CBD), Electrodeposition, Hydrothermal, Sol-gel, Chemical Vapour Deposition (CVD), physical vapour deposition (PVD), thermal evaporation, atomic layer deposition (ALD), SILAR, Spray pyrolysis, Spin coating, Dip Coating, Screen Printing, 3D printing MakerBot Replicator, and solvothermal chemical techniques
- Expertise in surface coating and technology.
- Expertise in fabrication and characterization of thin films and nanostructures.
- Expertise in fabrication and characterization of semiconductor (ZnO, In<sub>2</sub>O<sub>3</sub>, GaN, AlGa<sub>0.5</sub>N and GaAs).
- Expertise in half-cell and full cell Lithium-ion battery device fabrication in the glovebox.

**Surface Analysis and Material Characterisation Techniques:**

- Field Emission-Scanning electron microscopy (FE-SEM), energy-dispersive x-ray spectroscopy (EDX), atomic force microscopy (AFM), x-ray diffraction (XRD), UV-visible spectrometer, photoluminescence (PL), transmission electron microscopy (TEM), focused ion beam (FIB), Raman

spectroscopy, optical lithography, surface profilometry, field emission (FE), water contact angle (WCA), dielectric barrier discharge (DBD), cyclic voltammetry (CV), electrochemical impedance spectroscopy (EIS), Galvanostatic Charge/Discharge measurement (GCD), Rate capacitive measurement, semiconductor device analyser, and four point probe/Hall effect instruments.

- Experience of working in a clean room environment.
- Expert in handling Electrochemical analyser- BioLogic Potentiostat /galvanostat / EIS

#### **Software Skills:** (Computer Skills and Data analysis)

- Proficient in data analysis using Origin, Electrochemical data analysis, WSXM, Image J, Igor, Endnote, AFM-XEI, Image J, XPS Viewer and MS word, Excel and PowerPoint.
- Auto CAD, MATLAB, LabVIEW, C, C++ and FORTRAN 77 computer languages.

#### **Teamwork and Leadership:**

- Working on common project in a highly collaborative team
- Sharing research in an inter-disciplinary environment
- Designing experiments and assigning tasks within the team
- Successful and timely completion of project work packages
- Train, mentor and manage MSc students and PhD students

#### **Management and Teaching Skills:**

- Expertise in project management and worked in multidisciplinary international teams.
- Experience of working as an Assistant professor /laboratory demonstrator, as well as supervised undergraduate, postgraduate, PhD and research intern students.
- Managing both academic and commercial projects
- Working effectively on multiple and diverse projects, adjusting priorities as required
- Achieving deadlines of tasks

#### **IMPORTANT TRAININGS:**

- Completed Basic health and safety, Workstation Ergonomics VDSE (VDU), Fire Safety courses, Risk assessments (RAs) trainings at University College Cork, Ireland
- ‘Manufacturing of Compound Semiconductor Ridge Lasers’ at Tyndall National Institute, Cork, Ireland.
- Labview, Data Acquisition, Analysis & Control’ at University College Cork, Ireland.
- ‘Intellectual Property and Commercialisation’ at University College Cork, Ireland

## **1. Publications:**

Google Scholar: [https://scholar.google.com/citations?user=xSNp\\_VMAAAAJ&hl=en](https://scholar.google.com/citations?user=xSNp_VMAAAAJ&hl=en)

ResearchGate: [https://www.researchgate.net/profile/Vijaykumar\\_Jadhav](https://www.researchgate.net/profile/Vijaykumar_Jadhav)

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- [54] A. H Al-Naggar, A. Salah, T. M Al-Hejri, C. Kamble, Vijakumar V Jadhav, S. F Shaikh, Rajaram S Mane, *Journal of Energy Storage* 86 (2024) 111363. <https://doi.org/10.1016/j.est.2024.111363>
- [53] H. M. Danamah, Z. A. Shaikh, T. M. Al-Hejri, TAJ Siddiqui, Vijakumar V Jadhav, R. S. Mane, Conversion of the Bi<sub>2</sub>O<sub>3</sub> to Bi<sub>2</sub>S<sub>3</sub>: An ion exchange strategy for tailoring the surface morphology with accrued energy storage performance, *Journal of Energy Storage* 78, (2024) 109820.
- [52] Tariq M. Al-Hejri, Zeenat A. Shaikh, Ahmed H. Al-Naggar Siddheshwar D. Raut, Tabassum Siddiqui, Hamdan M. Danamah, Vijaykumar V. Jadhav, Abdullah M. Al-Enizi, Rajaram S. Mane, Electrochemical

supercapacitor and water splitting electrocatalysis applications of self-grown amorphous Ni(OH)<sub>2</sub> nanosponge-balls, *Electrochimica Acta* 474 (2024) 143516. <https://authors.elsevier.com/c/1i99B33-eVPEc>. Impact factor: 7.6

## 2023

- [51] S. Khademolqorani, S. N. Banitaba, A. Gupta, N. Poursharifi, A. A. Ghaffari, Vijaykumar V. Jadhav,\* Waqas Ul Arifeen, M. Singh, M. Borah, E. Chamanepour, Y. K. Mishra,\* Application Scopes of Miniaturized MXene-Functionalized Electrospun Nanofibers-Based Electrochemical Energy Devices, *Small* 2023, 2309572. <https://doi.org/10.1002/sml.202309572>
- [50] Q. Zhang, J. Zou, J. Ai, X. T. Pan, D. H. Qiao, S. C. Jun, Vijaykumar V. Jadhav, L. Kang, C. Huang, J. Zhang, In situ Construction of Fe-Cu Hydroxide Interlocking Structure with Solution-Derived Cu/Ag Current Collectors for Flexible Symmetric Supercapacitors, accepted in *ACS Applied Materials & Interfaces* 2023. <https://doi.org/10.1021/acsami.3c10925> Impact factor: 9.5
- [49] M. Z. Ansari, S. N. Banitaba, S. Khademolqorani, I. Kamika, Vijaykumar V. Jadhav,\* Overlooked Promising Green Features of Electrospun Cellulose-Based Fibers in Lithium-Ion Batteries, *ACS Omega*, November 7, 2023. <http://doi.org/10.1021/acsomega.3c05068> Impact factor: 4.0.
- [48] Dayakar Gandla, Zilong Zhuang, Vijaykumar V. Jadhav, Daniel Q. Tan, Lewis Acid Molten Salt Method for 2D MXene Synthesis and Energy Storage Applications: A Review, *Energy Storage Materials*, 63 (2023) 102977. Impact factor: 20.4. <https://authors.elsevier.com/c/1hozG8Z1RY1vgU>
- [47] Vijaykumar V. Jadhav\*, Zilong Zhuang, S. N. Banitaba, S. Khademolqorani, D Gandla, Fuming Zhang, Daniel Q. Tan, Tailoring Performance of the LiNi<sub>0.8</sub>Mn<sub>0.1</sub>Co<sub>0.1</sub>O<sub>2</sub> Cathode by Al<sub>2</sub>O<sub>3</sub> and MoO<sub>3</sub> artificial cathode electrolyte interphase (CEI) layers through plasma enhanced atomic layer deposition (PEALD) Coating, *Dalton Transactions*, 52 (2023), 14564-14572, <https://doi.org/10.1039/D3DT02865H> Impact factor: 4.0.
- [46] Zilong Zhuang, Fuming Zhang, Dayakar Gandla, Vijaykumar V. Jadhav, Zhaoxi Liu, Liangsheng Hu, Fushen Lu, and Daniel Q. Tan, Metal-Organic Framework Derived ZnO, N-Dually Doped Nanocages as an Efficient Host for Stable Li Metal Anodes, accepted in *ACS Applied Materials & Interfaces*, 15 (32) (2023) 38530-38539. <https://pubs.acs.org/doi/10.1021/acsami.3c08766>. Impact factor: 9.5.
- [45] Seyedeh Nooshin Banitaba, Sanaz Khademolqorani, Vijaykumar V. Jadhav, Yogendra K. Mishra, Ebrahim Mostafavi, Ajeet Kaushik, Recent progress of bio-based smart wearable sensors for healthcare applications, Accepted in *Materials Today Electronics*, 5 (2023), 100055. <https://doi.org/10.1016/j.mtelec.2023.100055>

## 2022

- [44] R. P. Sharma, S. D. Raut, V. V Jadhav, R. M. Mulani, A. S. Kadam, R. S. Mane, Assessment of antibacterial and anti-biofilm effects of zinc ferrite nanoparticles against Klebsiella pneumoniae, *Folia Microbiologica* (2022) 1-9. Impact factor: 2.1

## 2021

- [43] S. H. Narwade, P. V. Shinde, N. M. Shinde, V. V. Jadhav\*, S. F. Shaikh, R. S. Mane, U. V. Bhosle, Hydrangea-type bismuth molybdate as a room-temperature smoke and humidity sensor, *Sensors and Actuators B: Chemical* 348 (2021) 130643. Impact factor: 8.4

## 2020 (06 publication)

- [42] S. D. Waghmare, S. D. Raut, B. G. Ghule, V. V. Jadhav, S. F. Shaikh, A. M. Al-Enizi, M. Ubaidullah, A. Nafady, B. M. Thamer, R. S. Mane, Pristine and palladium-doped perovskite bismuth ferrites and their nitrogen dioxide gas sensor studies, *Journal of King Saud University-Science*, 32 (7) (2020) 3125-3130. (Citation: 05), Impact factor: 4.01



- [41] A. B. Mugutkar, S. K. Gore, U. B. Tumberphale, V. V. Jadhav, R. S. Mane, S. M. Patange, S. E. Shirsath, S. S. Jadhav, Role of composition and grain size in controlling the structure sensitive magnetic properties of  $\text{Sm}^{3+}$  substituted nanocrystalline Co-Zn ferrites, *Journal of Rare Earths*, 38 (10) (2020) 1069-1075. (Citation: 12), Impact factor: 3.712
- [40] M. Kishanji, G. Mamatha, D. Madhuri, D. Suresh Kumar, G. Vijaya Charan, S. Ramesh, V. V. Jadhav, K. Madhukar, Preparation and characterization of cellulose/in situ generated silver nanoparticle composite films prepared using Pongamia pinnata leaf extract as a reducing and stabilizing agent, *Inorganic and Nano-Metal Chemistry*, (2020) 1-7. Impact factor: 1.0
- [39] A. L. O. Ahmed, B. S. Samer, U. T. Nakate, V. V. Jadhav, R. S. Mane, Electrodeposited spruce leaf-like structured copper bismuth oxide electrode for supercapacitor application, *Microelectronic Engineering*, 229 (2020) 111359. (Citation: 02), Impact factor: 2.52
- [38] S. S. Sangale, V. V. Jadhav, S. Shaikh, P. V. Shinde, B. G. Ghule, S. D. Raut, M. S. Tamboli, A. M. Al-Enizid, R. S. Mane, Facile one-step hydrothermal synthesis and room-temperature  $\text{NO}_2$  sensing application of  $\alpha\text{-Fe}_2\text{O}_3$  sensor, *J. Materials Chemistry and Physics* (2020) 122799. (Citation: 06), Impact factor: 4.094, <https://doi.org/10.1016/j.matchemphys.2020.122799>
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#### 2019 (05 publication)

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#### 2015 (04 Publication)

- [12] M. K. Zate, S. M. F. Shaikh, V. V. Jadhav, K. K. Tehare, S. S. Kolekar, R. S. Mane, M. Naushad, B. N. Pawar, K. N. Hui, Synthesis and electrochemical supercapacitive performance of nickel–manganese ferrite composite films, *Journal of Analytical and Applied Pyrolysis*, 116, (2015) 177-182. (Citation: 27), Impact factor: 5.5
- [11] V. V. Jadhav, D. V. Shinde, S. A. Patil, S. Liu, S. U. Mutkule, M. Naushad, R. S. Mane, K. N. Hui, S. H. Han, Morphology-inspired low-temperature liquefied petroleum gas sensors of indium oxide, *Scripta Materialia*, 107, (2015) 54-58. (Citation: 09), Impact factor: 5.6
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#### 2013 (02 Publication)

- [04] V. V. Jadhav, S. A. Patil, D. V. Shinde, S. D. Waghmare, M. K. Zate, R. S. Mane, S. H. Han, Hematite nanostructures: Morphology-mediated liquefied petroleum gas sensors, *Sensors and Actuators B: Chemical*, 188, (2013) 669-674. (Citation: 26), Impact factor: 7.4
- [03] S. A. Patil, D. V. Shinde, S. S. Bhande, V. V. Jadhav, T. N. Huan, R. S. Mane, S. H. Han, Current density enhancement in ZnO/CdSe photoelectrochemical cells in the presence of a charge separating SnO<sub>2</sub> nanoparticles interfacing-layer, *Dalton Transactions*, 42 (36), (2013) 13065-13070. (Citation: 14), Impact factor: 4.3

#### 2012 (02 Publication)

- [02] S. D. Waghmare, V. V. Jadhav, S. K. Gore, S. J. Yoon, S. B. Ambade, B. J. Lokhande, R. S. Mane, S. H. Han, Efficient gas sensitivity in mixed bismuth ferrite micro (cubes) and nano (plates) structures, *Materials Research Bulletin* 47 (12), (2012) 4169-4173. (Citation: 32), Impact factor: 4.6
- [01] V. V. Jadhav, S. Patil, J. Lim, R. S. Mane, S. H. Han, Synergic Electrochemical Supercapacitance in Hybrid (polymer/inorganic) Nanostructures, *Sponsored National conference on Nanotechnology-2012*, 4(05), (2012), 978-981.

## **2. Granted Patent(s). NA**

## **3. Research monographs, Book Chapters**

- [1] **V. V. Jadhav**, P. K. Shinde, C. O'Dwyer, R. S. Mane, Chapter, "Shape controlled Hybrid Nanostructures for Cancer Theranostics", in, "Hybrid Nanostructures for Cancer Theranostics" book, Oxford: **Elsevier** Inc. publishing, *Micro and Nano Technologies*, (2019) 209-227 Paperback ISBN: 9780128139066
- [2] S. Shirsat, **V. V. Jadhav**, R. S. Mane, "Magnetically stimulated breast cancer nanomedicine" in "External Field and Radiation Stimulated Breast Cancer Nanotheranostics" **IOP Publishing 2019**

- [3] S. D. Shirsat, V. V. Jadhav, R. S. Mane, “Biological prospective of hybrid Nanostructures” in Nanomedicines for Breast Cancer Theranostics” book, Elsevier Inc. publishing, Micro and Nano Technologies, (2020)

#### 4. **Books (03);**

1. Bismuth-Ferrite-Based Electrochemical Supercapacitors (<https://www.springer.com/gp/book/9783030167172>)
2. Spinel Ferrite Nanostructures for Energy Storage Devices (<https://www.sciencedirect.com/book/9780128192375/spinel-ferrite-nanostructures-for-energy-storage-devices>)
3. Solution Methods for Metal Oxide Nanostructures (<https://www.elsevier.com/books/solution-methods-for-metal-oxide-nanostructures/mane/978-0-12-824353-4>)

#### 5. **Invited presentations**

- [1] **V. V. Jadhav**, R. S. Mane, “Annealing environment reliant in-depth analysis of the Structural, morphological, and electrochemical performance of Ni-foam,” E-MRS Spring Meeting 2017 (Strasbourg, France 2017). **Oral Presentation by invitation**
  - [2] **V. V. Jadhav** ‘metal oxide based supercapacitor’ INUP Hands-on Training Workshop on Nanofabrication Technologies’ to be held at IIT, Bombay during 11-09-2017 to 15-09-2017. **Invited Talk**
  - [3] **V. V. Jadhav**, ‘Participated Research Based Pedagogical Tools Workshop’ IISER Mohali, India, 22-25 Jan, 2017. **Invited talk**
  - [4] **V. V. Jadhav**, Electrochemical Supercapacitor, 97<sup>th</sup> Orientation Course, Central University, Hyderabad, 23<sup>rd</sup> November – 20<sup>th</sup> December 2016, **Invited Talk**
  - [5] **V. V. Jadhav**, R. S. Mane, Ferrite Nanostructure for Electrochemical Supercapacitor, International Conference on ‘Recent Innovations in Nano-Bio-Polymer- Pharmaceutical Technologies’ held at S. R. T. M. University Nanded on January 13-14, 2013. **Oral Presentation by invitation**
  - [6] **V. V. Jadhav**, Cobalt ferrite nanostructure for electrochemical supercapacitor, held at Hotel, Green Park, Chennai Jan 5-8, 2012, **Oral Presentation**
6. **Research expeditions** that the *experienced researcher* has led
    - [1] Development of metal oxide based electrochemical energy device. **Samsung Li-Ion Battery & Renewable Energy, South Korea**
    - [2] Development of asymmetric supercapacitor using metal oxide. **Global Frontier Hybrid Interface Materials, South Korea**
    - [3] 3D printed Li-ion battery using 2D material, **University College of Cork, Ireland**

#### 7. **Organization of International conferences:**

- [1] Organizing committee member: International Conference on Nanotechnology, Held at S. R. T. M. University, Nanded, India, during January 11-12, 2011.
- [2] Organizing committee member: International Conference on Recent Innovations in Nano-Bio-Polymer- Pharmaceutical Technologies, held at S. R. T. M. University, Nanded, India, during January 13-14, 2013.

#### 8. **Supervising and mentoring activities**

**China:** Supervising 05 Master students and 03 PhD Students.

**Ireland:** Supervised 02 Master students and 01 PhD Students.

**South Korea: Supervised 02 Master students:** Material Science and Engineering department, Pusan National University, Busan, South Korea. Title: Asymmetric Supercapacitor. (January 2015-May 2016)

**India: Supervised 10 Master students:** M.Sc. Physics, Department of Physics, Shivaji Mahavidyalaya, Udgir, S.R.T.M. University (01/07/2016- 31/12/2017). Title: metal oxide based electrochemical supercapacitor. Also supervised engineering graduate Students on material science at Matoshri Pratishthan’s college of engineering (2011-2014).

#### 9. **Teaching experience**

Two years teaching experience in Department of Physics, Shivaji Mahavidyalaya, Udgir, affiliated to SRTM University, Nanded, India.

**Role:** Assistant Professor (undergraduate and postgraduate)

**Duration:** 1<sup>st</sup> July 2016-30<sup>th</sup> December 2017

❖ **Other Information**

**A. PhD Title:** “Electrochemical Supercapacitors of Bismuth, Cobalt and Bi-Co Ferrite Nanostructures”

Subject: **Physics**, Guide: Prof. R. S. Mane

**B. Scientific Visits:**

- Visiting Researcher- Department of Physics, Philipps University, Marburg, Germany, **Duration:** 24 July - 28 July, 2017.
- Visiting Researcher- Department of Chemistry, Hanyang University, Seoul, South Korea, **Duration:** 1 May 2012 - 27 July 2012.

**C. Workshop and school**

- 'INUP Hands-on Training Workshop on Nanofabrication Technologies' held at IIT, Bombay, India, during 11-09-2017 to 15-09-2017.
- Research Based Pedagogical Tools Workshop, IISER Mohali, India, during 22-25 January 2017.
- “Ultra-Cold Atoms for Fundamental Science and Enabling Technologies” held during December 16-20, 2013 held at the IISER Pune, India.
- Workshop on Interdisciplinary Nanoscience held on 26 Feb. 2012 at held at S. R. T. M. University, Nanded, India.
- Organized INSPIRE Camp for school children’s in S. R. T. M. University, Nanded, India during (02th - 06th September 2015).

**D. SKILLS**

**Instrument Handling Skills**

- FE-SEM operator, Hitachi, S-4800, 15 kV
- SmartLab Automated Multipurpose Rigaku X-ray Diffractometer
- BioLogic Potentiostat / galvanostat / EIS
- 3D Printer MakerBot Replicator 2X
- UV Spectrometer

**E. Thin Film Deposition Skills**

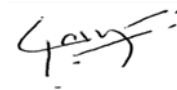
- Chemical Vapor Deposition (CVD), Atomic Layer Deposition (ALD), Electrodeposition, Hydrothermal, CBD, SILAR, Sol-Gel, Spray pyrolysis, Spin coating, Dip Coating, Screen Printing.

**DECLARATION:**

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

Date: 01/02/2024

Place: Udgir.



Signature

**Dr. Vijaykumar V. Jadhav**