

Curriculum Vitae

Name- Dr. N. L. Tarwal

M.Sc., SET, Ph.D.

Address - A/P-Dundage, Tal- Chandgad,
Dist- Kolhapur. Pincode-416508
Maharashtra, India.



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Scopus author ID: 26429017000

ORCID ID: <https://orcid.org/0000-0001-9951-6514>

1) Google Scholar Blog

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

2) Research gate Blog

https://www.researchgate.net/profile/Dr_N_L_Tarwal

3) Scopus Web for Researcher (Author ID: 26429017000)

<https://www.scopus.com/authid/detail.uri?origin=resultslist&authorId=26429017000&zone>

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OBJECTIVE:-

“To become a successful professional in the field of Science and Technology and to work in an innovative and competitive world, where my knowledge & skills are well utilized.”

PERSONAL SKILLS:-

Ability to deal with people diplomatically, positive thinking, comprehensive problem solving abilities, willingness to learn, Team facilitator.

RECENT OCCUPATION:-

Assistant Professor,

Department of Physics,
Shivaji University, Kolhapur.
Pincode-416004
Maharashtra, India.

PREVIOUS JOB:-

A) Assistant Professor and Head,

Department of Physics,
Lal Bahadur Shastri College, Satara,
Pincode-415002
Tal-Dist-Satara,
Maharashtra, India.

B) Post-doctoral Researcher,

Under the supervision of **Prof. Jae Hyung Jang**
Compound Semiconductor Research Group,
Research Institute for Solar and Sustainable Energies (RISE),
Gwangju Institute of Science and Technology (GIST),
261,Cheomdan-gwagi-ro, Buk-gu, Gwangju, 500-712,
Republic of Korea.

TITLE OF THE DOCTORAL (PH.D.) WORK:-

Area : Solid State Physics / Material Science

Title :“ Preparation of ZnO and transition metal (Ni, Cu, Co, Ag, Au) doped ZnO thin films by spray pyrolysis technique and their characterization” under the guidance of

Prof. Pramod Shankarrao Patil (M.Sc., Ph.D. FinstP. (UK))

Coordinator- School of Nanoscience and Nanotechnology.
Thin Film Materials Laboratory,
Department of Physics,
Shivaji University, Kolhapur-416004,
Maharashtra, India.

PROJECT UNDERTAKEN POST-GRADUATION:-

Project Area : Superconductivity

Project Title: “Studies on Electrophoretic Deposition of Boron films and their intercalation with Magnesium to form MgB₂ superconducting films” under the guidance of **Prof. S. H.**

Pawar, Shivaji University, Kolhapur-416004, M.S., India.

PERSONAL DETAILS:-

Date of Birth	15 th April 1983
Nationality	Indian
Marital Status	Married
Height	5'6"
Religion	Hindu
Blood Group	O Rh+ve
Languages Known	English, Hindi, Marathi, Korean

EDUCATION QUALIFICATION:-

Degree	University/ Board	Special Subjects	Year
Ph. D.	Shivaji University	Physics/Materials Science	July-2011
M. Sc.	Department of Physics Shivaji University	Energy Science	Apr-2006
B. Sc.	Shivaji University Shivraj College, Gadhinglaj	Physics	Apr-2004
H.S.C.	Kolhapur Board V.P.Desai Jr.College, Kowad	Science, Maths	Feb-2001
S.S.C.	Kolhapur Board Dundage Highschool Dundage	Science, Maths & language subjects	March-1999

PROFESSIONAL WORK EXPERIENCE:-

Sr. No.	Designation	From	To	Name of the Institution
1.	Assistant Professor	11/08/ 2017	Till now	Department of Physics, Shivaji University, Kolhapur.
2.	Head of Physics Department	07/08/ 2015	10/08/2 017	Lal Bahadur Shastri College of Arts, Science and Commerce, Satara
3.	Assistant Professor	24/07/ 2014	10/08/2 017	Lal Bahadur Shastri College of Arts, Science and Commerce, Satara
4.	Post-Doc	15/11/ 2011	02/05/ 2014	Research Institute for Solar and Sustainable Energies (RISE), Gwangju Institute of Science and Technology (GIST), South Korea.

5.	Temp. Lecturer (CHB)	01/07/ 2010	30/04/2 011	Rajaram College, Kolhapur Government of Maharashtra & Devchand College, Arjun Nagar, Nipani
6.	Junior Research Fellow	31/01/2 009	27/06/ 2010	Department of Physics, Shivaji University, Kolhapur
7.	Teaching Assistant	21/07/ 2007	30/01/2 009	Department of Physics, Shivaji University, Kolhapur

COMPUTER PROFICIENCY:-

Computer Course : DCP & SA

Operating Systems : Windows

Software Worked With : MS Office

TECHNICAL SKILLS:-

Technology : C, C++

Operating System : Windows Server 2000, Win-XP

CO-CURRICULAR ACTIVITIES:-

- Completed a period of two years as N.S.S. with N.S.S. Representative. Also attended N.S.S. camp at Shendri and Harali (Bk).
- Completed Post Graduation through **EARN & LEARN** scheme from Dr. Appasaheb Pawar Vidyarthi Bhavan, Shivaji University, Kolhapur.
- Delivered talk on “**Effects of Excess use of Mobiles**” in the NSS camp arranged by LBS college, Satara at Renawale.
- Delivered talk on “**Solar Cells**” arranged by Meenelben Mehta college at Pachgani.
- Delivered talk on “**Nanotechnology**” arranged by NSS, LBS College at Satara.
- Delivered talk on “**Basics of Nanotechnology**” arranged by NSS, Meenelben Mehta College at Vivar, Satara.
- Delivered talk on “**Nanotechnology**” arranged by Staff Academy, LBS College at Satara.
- Delivered talk on “**How to write a research proposal**” arranged by Research

Committee, LBS College at Satara.

- Delivered talk on “**How to write a research paper**” arranged by SP College at Lonand, Satara.
- Delivered talk on “**Advances in the Nano-Instrumentation and Nanotechnology**” at National Conference organized by P.C. Jabin Science College, Hubballi.
- Deliver talk on “**Emerging Trends in Physics:Advances in the Nanotechnology**” at one day workshop organized by Dahiwadi College, Dahiwadi.
- Delived talk as a Resource person at One week Short Term training Programme on **Recent Trends in advanced Materials for Engineering and Technology** held at Government college of Engineering, Karad.
- Delivered talk on “**Role of Teachers in our life**” arranged by Devchand College, Arjunnagar, Nipani.
- Webinar talk on “**Opportunities and Challenges of Making Solar cells**” at G.M.Vedak College of Science.

CURRENT PH.D. STUDENTS:-

Sr. No.	Name of the Ph.D. Students	Area of Research
1	Miss. A. A. Bhoite	Supercapacitor
2	Mr. K.V. Patil	Solar Cell
3	Mr. R. S. Redekar	Supercapacitor
4	Miss. S. L. Patil	Memristor

SELF ASSESSMENT:-

- Leadership Skills, Co-operative Skill, Relation Development Skill.

ACHIEVEMENTS/HONORS/PRIZES/AWARDS:-

- Worked as a **Treasurer** for 4th International Conference on Physics of Materials and Materials Based Device Fabrication (4th ICPM-MDF-2019) organized by Department of Physics, Shivaji University, Kolhapur on 10-11 January 2019.

- Worked as a **Convener** for National Conference on Recent Trends in Physical, Chemical & Nanosciences (NCRT-PCNano-2017) organized by LBS College Satara on 23rd March 2017.
- Worked as **Coordinator** for Satara District level Aviskar Competitions of the Shivaji University held at LBS College Satara.
- Worked as **Coordinator** for College level Research Festival at LBS College Satara.
- Worked as **Subject Expert** for Local Selection Committee at Dnyanshree Institute of Engineering & Technology, Sajjangad Road, Satara.
- Worked as **Examiner** for DST Inspire Award (District level) at Shripatrao Patil High school and Jr College, Karanje Peth, Satara.
- Worked as **Head of the Physics Department**, LBS College Satara.
- **Young Associate Fellow** (2019) of Maharashtra Academy of Sciences
- **Young Scientist Award** in Second International Conference on Science and Technology (ICSTS-2015) held at **Colombo, Sri-Lanka**.
- **Life Member Award** from Vishwashanti Multipurpose Society, Nagpur.
- Selected as International Conference Committee Member on Sensors Engineering and Electronics Instrumental Advances (SEIA-2015) which will be held at Dubai, UAE on 22-23 November 2015.
- **Member of BoS (Physics)** of the C. K. Thakur Arts, Commerce and Science College, New Panvel (Autonomous).
- **Chief Rector** of Vidyarthi Bhavan (**Earn and Learn Scheme**), Shivaji University, Kolhapur.
- **Ex-Rector** of Boys Hostel No. 3, Shivaji University, Kolhapur.
- Selected Biography for **Who's Who in the World® 2016** (33rd Edition), which is scheduled for publication in December 2015. Marquis Who's Who VIP Number is: 37104600.
- **2000 Outstanding Intellectuals of the 21st century** by IBC, Great Britain in May 2016.
- **Cambridge Certificate for outstanding scientific achievement** by IBC, Great Britain in July 2016.
- **Best N.S.S. Candidate Award** with **N.S.S. Representative** in Shivraj College, Gadhinglaj.
- Recipient of the **Retired Teachers Fellowship-2005** award among the **Earn and Learn** scheme students at Master level.
- Recipient of the **Late Dada Chavan Prize** award among the **Earn and Learn** scheme students at Master level.

- **Third prize for poster presentation-** Studies on Electrophoretically deposited Boron films and their Magnesium diffusion to synthesize MgB_2 films. (NASMAT-2006)
- **First prize for poster presentation-** Spray deposited Au–ZnO: A tunable localized surface plasmonic nanocomposite. (CRET-2009) at DYPatil University, Kolhapur.
- **First prize for Oral presentation-** Fabrication and performance of the solar cell devices based on electrodeposited compact CZTS films. (NCMECS-2016) at Pimpri-Waghere, Pune.
- **Best Oral Award-** Fabrication and performance of the solar cell devices based on electrodeposited compact CZTS films. (ICAMS-2016) at Jath.
- **Excellent Poster Awards in IUMRS-ICA-2011-12th International Conference in Asia- Poster no. 0402** Chemical Synthesis of Nanoporous Electrochromic NiO.
- **Worked as Team Leader in the Avishkar Competition**
 - 1) Held at Dahiwadi College Dahiwadi (2014) and BD college, Patan (2015)
 - 2) Held at Department of Chemistry Shivaji University Kolhapur
- **Junior Research Fellow (JRF)** for Meritorious research student from UGC, New Delhi.
- **Editor of the STM journals (Website: www.stmjournals.com)**
 - 1) **Recent Trends in Sensor Research & Technology**
 - 2) **Journal of Surface and Hybrid Coating Technology**
 - 3) **Guest Editor- Journal Of Nanomaterials (Hindavi publications)**
- **Reviewer** of different Scientific Journals.
- **Cover Competition** Winning Award of **Materials Today_2012**.
Cover page Award: for the October issue of Materials Today 2013.



Complete list of publications of Dr. N. L. Tarwal

A) Research publications with peer review process:

Sr. No.	Title of paper	Name of the Authors	Name of Journal	Year	ISSN /ISB N No.	Volume	Page No	Impact Factor
1	Bipolar resistive switching, synaptic plasticity and non-volatile memory effects in the solution-processed zinc oxide thin film	V.L. Patil, Aditya A. Patil , S.V. Patil, N.A. Khairnar, N.L. Tarwal , S.A. Vanalakar, R. N. Bulakhe, Insik In, P.S. Patil, T.D. Dongale	Materials Science in Semiconductor Processing	2020	1369-8001	106	104-769	2.722
2	Fabrication of nanogranular TiO ₂ thin films by SILAR technique: Application for NO ₂ gas sensor	V.L. Patil, S.A. Vanalakar, S. S. Shendage, S. P. Patil, A. S. Kamble, N. L. Tarwal , K. K. Sharma, J. H. Kim & P. S. Patil	Inorganic And Nano-Metal Chemistry	2019	2470-1564	49(7)	191-197	0.685
3	Construction of Cu doped ZnO nanorods by chemical method for Low temperature detection of NO ₂ gas	V.L. Patil, S.A. Vanalakar, N.L. Tarwal , A.P. Patil, T.D. Dongale, J.H. Kim, P.S. Patil	Sensors and Actuators A	2019	0924-4247	299	111-611-21	2.739
4	A facile synthesis of α -Ni(OH) ₂ -CNT composite films for supercapacitor application	S.B.Abitkar,P.R. Jadhav, N.L. Tarwal , A.V. Moholkar, C.E. Patil	Advanced Powder Technology	2019	0921-8831	30(10), pp.	228-229-2	3.25
5	Quantum dot based solar cells: Role of nanoarchitectures, perovskite quantum dots and charge transporting layers	J. S. Shaikh, N. S. Shaikh, S.S. Mali, J.V. Patil, S.Beknalkar, A. P. Patil, N.L. Tarwal , P. Kanjanaboos, C. K Hong, P. S. Patil	Chem Sus Chem	2019	1864-564X	-	-	7.804
6	Surfactant-assisted spray pyrolyzed SnO ₂ nanostructures for NO ₂ gas-sensing application	D.L. Kamble, V.L.Patil, , N.L. Tarwal , P.S. Patil, L.D. Kadam	Applied Physics A: Materials Science and Processing	2019	0947-8396	125 (3)	219	1.604
7	Enhanced energy density and stability of self-	S. P. Gupta,V. B. Patil, N.L. Tarwal , S.D.	Materials Chemistry	2019	0254-	225	192-	2.21

	assembled cauliflower of Pd doped monoclinic WO ₃ nanostructure supercapacitor	Bhame, S.W. Gosavi, I.S. Mulla, D. J. Late, S. S. Suryavanshi, P. S. Walke	Physics		0584		199	0
8	Facile green synthesis of In ₂ O ₃ bricks and its NO ₂ gas sensing properties	K. K. Pawar, V. L. Patil, N.L. Tarwal , N. S. Harale · Jin H. Kim, P.S. Patil	Journal of Materials Science: Materials in Electronics	2018	0957-4522	Online		2.019
9	Gas Sensing Properties of Hydrothermally Synthesized Button Rose-Like WO ₃ Thin Films	M.S. Patil, V.L. Patil, N.L. Tarwal , D.D. More, V.V. Alman, L.D. Kadam, P.S. Patil, And J.H. Kim	Journal of Electronic Materials	2018	0361-5235	48(1)	526 - 535	1.579
10	Gas sensing properties of 3D mesoporous nanostructured ZnO thin films	V. L. Patil, S. S. Kumbhar, S. A. Vanalakar, N. L. Tarwal , S. S. Mali, J. H. Kim and P. S. Patil	New Journal of Chemistry	2018	1144-0546	42	135 73-135 80	3.201
11	Photoelectrochemical performance of dye and semiconductor sensitization on 1-D hollow hexagonal ZnO rods: A comparative study	S. S. Patil, N. L. Tarwal , H. M. Yadav, S. D. Korade, T. S. Bhat, A. M. Teli, M. M. Karanjkar, J. H. Kim, P. S. Patil	Journal of Solid State Electrochemistry	2018	1432-8488	22 (10)	301 5-302 4	2.509
12	ZnS passivated PbSe sensitized TiO ₂ nanorod arrays to suppress photocorrosion in photoelectrochemical solar cells	T.S. Bhat, S.S. Mali, A.D. Sheikh, N.L. Tarwal , S.D. Korade, C.K. Hong, J.H. Kim, P.S. Patil	Materials Today Communications	2018	2352-4928	16	186 - 193	1.895
13	Single-step hydrothermally grown nanosheet assembled tungsten oxide thin films for sensitive and selective NO ₂ gas detection	N. S. Harale, D. S. Dalavi, Sawanta S. Mali, N. L. Tarwal , S. A. Vanalakar, V. K. Rao, Chang Kook Hong, J. H. Kim, and P. S. Patil	Journal of Electronic Materials	2018	0361-5235	53(8)	609 4-610 5	1.579

14	Influence of Sn ⁴⁺ on Structural and DC Electrical Resistivity of Ni-Zn Ferrite Thick Films	S.P. Dalawai, T.J. Shinde, A.B. Gadhari, N.L. Tarwal , J.H. Jang, P.N. Vasambekar	Journal of Electronic Materials	2017	0361-5235	46	142 7- 143 8	1.579
15	The selective ethanol gas sensing performance of CdO _{1-x} ZnO _x nanocomposite	A.K. Sharma, S.S. Potdar, K.S. Pakhare, B.M. Sargar, M.V. Rokade, N.L. Tarwal	Journal of Materials Science: Materials in Electronics	2017	0957-4522	28	375 2- 376 1	2.019
16	Enhanced NO ₂ response of hydrothermally grown Ti doped WO ₃ nanostructures	V.B. Patil, N.L. Tarwal , S.H. Mujawar, I.S. Mulla, P.S. Walke, S.S. Suryavanshi	Journal of Materials Science: Materials in Electronics	2017	0957-4522	28	161 2- 161 9	2.019
17	Effect of annealing on the properties of CTAB assisted of lead tungstate	V.B. Patil, N.L. Tarwal , I.S. Mulla, N.S. Harale, P.S. Patil, S.S. Suryavanshi	Materials Letters	2016	0167-577X	181	350 - 353	2.572
18	Hydrothermally grown ZnO nanorods arrays for selective NO ₂ gas sensing: Effect of anion generating agents	N.S. Harale, A.S. Kamble, N.L. Tarwal , I.S. Mulla, V.K. Rao, J.H. Kim, P.S. Patil	Ceramics International	2016	0272-8842	42	128 07- 128 14	2.11
19	Quaternary Co _{1-x-y} Zn _x Cd _y S thin films: A facile synthesis approach and its aptness for the applications in micro-devices	S.S. Kamble, A.Sikora, S.L.Deshmukh, G.T.Chavan, V.S.Karande, S.T.Pawar, N.L. Tarwal , L.P.Deshmukh,	Materials Letters	2016	0167-577X	167	61- 64	2.269
20	Studies on the Zn _x Co _{1-x} S thin films: A facile synthesis process and characteristic properties	S.S. Kamble, D.P. Dubal, N.L. Tarwal , A. Sikora, J.H. Jang, L.P.	Journal of Alloys and Compoun	2016	0925-8388	656	590 - 597	2.407

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21	Structural and Magnetic Properties of Ni _{0.8} Co _{0.2} -2xCu _x MnxFe ₂ O ₄ Spinel Ferrites Prepared via Solution Combustion Route	P.S.Jadhav, Ketaki Patankar, Vikas Mathe, N.L. Tarwal , J.-H. Jang, V.R. Puri,	Journal of Magnetism and Magnetic Materials	2015	0304-8853	385	160 – 165	1.892
22	Graphene Oxide-Phosphor Hybrid Nanoscrolls with High Luminescent Quantum Yield: Synthesis, Structural and X-ray Absorption Studies	J.R.Rani, S.I Oh, J.M.Woo, N.L.Tarwal , H.W. Kim, B. Mun, S. Lee, K.J. Kim, J.H. Jang	ACS Appl. Mater. Interfaces	2015	1944-8244	7	569 3–5 700	5.90
23	Pulsed electrodeposition of Cu ₂ ZnSnS ₄ thin films: Effects of pulse potentials	K.V. Gurav, Y.K. Kim, S.W. Shin, M.P. Suryawanshi, N.L. Tarwal , U.V. Ghorpade, S.M. Pawar, S.A. Vanalakar, I.Y. Kim, J.H. Yun, P.S. Patil, J.H. Kim,	Materials Letter,	2014	0167-577X	228	817 - 827	2.269
24	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, ...	Optical Materials	2014	0925-3467	37	766 - 772	2.086
25	Thickness dependent Photoelectrochemical performance of Chemically synthesized nanostructured CdS thin films	S.A.Vanalkar, S.S.Mali, M.P.Suryavanshi, N.L.Tarwal , G.L.Agwane, P.S.Patil, J.H.Kim	Zeitschrift für Physikalische Chemie,	2014	0942-9352	228	817 - 827	1.178
26	Dielectric and Magnetic Properties of Co Substituted Ni-Cd-Ferrite Prepared By Solution Combustion Method	N. D. Patil, N. B. Velhal, N. L. Tarwal , Vijaya R. Puri,	International J. of Engineering & Innovative Technology	2014	2277-3754	3	73-77	1.913

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27	Effect of Buffer Layer Composition and Surface Features on Large Area and High Efficiency $\text{CuIn}_x\text{Ga}_{1-x}\text{Se}_2$ Solar Cells	T.Premkumar, Maeng Jun Kim, HojungJeong, Sehyun Hwang, N.L.Tarwal , Yon KilJeong, Jae Hyung Jang	39 th IEEE	2013			199 2- 199 5	1.746
28	Gas sensing performance of the spray deposited Cd-ZnO thin films	N.L. Tarwal , A.R. Patil, N.S. Harale, A.V. Rajgure, S.S. Suryavanshi, W.R. Bae, P.S. Patil, J.H. Kim, J.H. Jang,	Journal of Alloys and Compounds	2014	0925-8388	598	282 - 288	2.407
29	Structure, X-ray photoelectron spectroscopy and photoluminescence investigations of the spray deposited cobalt doped ZnO thin films	N.L. Tarwal , K.V. Gurav, T. Premkumar, Y.K. Jeong, H.S. Shim, I.Y. Kim, J.H. Kim, J.H. Jang, P.S. Patil	Journal of Analytical and Applied Pyrolysis	2014	0165-2370	106	26- 32	3.561
30	Photoluminescence and photoelectrochemical properties of the spray deposited copper doped zinc oxide thin films	N.L. Tarwal , K.V. Gurav, S.H. Mujawar, S.B. Sadale, K.W. Nam, W.R. Bae, A.V. Moholkar, J.H. Kim, P.S. Patil, J.H. Jang	Ceramics International	2014	0272-8842	40	766 9- 767 7	2.11
31	Electrochromic performance of the mixed V_2O_5 - WO_3 thin films synthesized by pulsed spray pyrolysis technique	C.E. Patil, N.L. Tarwal , P.R. Jadhav, P.S. Shinde, H.P. Deshmukh, M.M. Karanjkar, A.V. Moholkar, M.G. Gang, J.H. Kim, P.S. Patil	Current Applied Physics	2014	1567-1739	14	389 - 395	1.999
32	The beauty of heterogeneity: Spray pyrolyzed Sn-ZnO thin films with cabbage-like morphology	N.L. Tarwal , J.H. Jang, M.G. Gang, J.H. Kim, P.S. Patil	Materials Today	2014	1369-7021	16	403 - 404	10.85 0.
33	Gas sensing performance of hydrothermally grown CeO_2 -ZnO composites	A.V. Rajgure, N.L. Tarwal , J.Y. Patil, L.P. Chikhale, R.C. Pawar, C.S. Lee, I.S. Mulla, S.S. Suryavanshi	Ceramics International	2014	0272-8842	40	583 7- 584 2	2.110

34	A selective ethanol gas sensor based on spray derived Ag-ZnO thin films,	N.L. Tarwal , A.V. Rajgure, J.Y. Patil, M.S. Khandekar, S.S. Suryavanshi, P.S. Patil, M.G. Gang, J.H. Kim, J.H. Jang	Journal of Materials Science	2013	0022-2461	48	727 4- 728 2	2.305
35	Growth of multifunctional ZnO thin films by spray pyrolysis technique	N.L. Tarwal , A.V. Rajgure, A.I. Inamdar, R.S. Devan, I.Y. Kim, S.S. Suryavanshi, Y.R. Ma, J.H. Kim, P.S. Patil	Sensors and Actuator A: Physical	2013	0924-4247	199	67- 73	2.143
36	NanocrystallineCe doped CoFe ₂ O ₄ as an acetone gas sensor	M.S. Khandekar, N.L. Tarwal , I.S. Mulla, S.S. Suryavanshi	Ceramics International	2014	0272-8842	40	447 - 452	2.110
37	Single-step synthesis of 3D nanostructured TiO ₂ as a scattering layer for vertically aligned 1D nanorodphotoanodes and their dye-sensitized solar cell properties	S.S. Mali, H.J. Kim, C.S. Shim, W.R. Bae, N.L. Tarwal , S.B. Sadale, P.S. Patil, J.H. Kim, C.K. Hong	Cryst. Eng. Comm.	2013	1466-8033	15	566 0- 566 7	3.858
38	Liquefied petroleum gas sensing performance of cerium doped copper ferrite	M.S. Khandekar, N.L. Tarwal , J.Y. Patil, F.I. Shaikh, I.S. Mulla and S. Suryavanshi	Ceramics International	2013	0272-8842	39	590 1- 590 7	2.110
39	Structural, Mössbauer and electrical properties of nickel cadmium ferrites synthesized by standard ceramic process	M. M. Karanjkar, N. L. Tarwal , A. S. Vaigankar, P. S. Patil	Ceramics International	2013	0272-8842	39	175 7- 176 4	2.110
40	Spray deposited localized surface plasmonic Au-ZnO nanocomposites for solar cell application	N.L. Tarwal , R.S. Devan, Y.R. Ma, R.S. Patil, M.M. Karanjkar, P.S. Patil	Electrochimica Acta	2012	0013-4686	72	32- 39	4.086
41	Nickel induced microwheel-like surface morphological evolution of ZnO thin films by spray pyrolysis	N. L. Tarwal , P. S. Shinde, Y. W. Oh, RomanaCercKorošec, P. S. Patil	Applied Physics A	2012	0947-8396	109	591 - 599	1.694

42	Surfactant mediated growth of ZnO nanostructures & their dye sensitized solar cell properties	R. C. Pawar, J. S. Shaikh, N. L. Tarwal , M. M. Karanjakar, P. S. Patil	J.Mat. Sci.:Mater. Electron.	2012	0957-4522	23	349 - 355	1.966
43	Photoelectrochemical properties of CdS sensitized ZnO nanorod arrays: Effect of nanorod length	S. A. Vanalakar, S. S. Mali, R. C. Pawar, N. L. Tarwal , A. V. Moholkar, J. H. Kim, P. S. Patil	Journal of Applied Physics	2012		112	044 302 - 044 307	2.185
44	Synthesis and characterization of f-MWCNT-WO ₃ thin films and their use in Electrochromic devices	P.M. Kadam, N.L. Tarwal , S.S. Mali, H.P. Deshmukh, P.S. Patil	Electrochimica Acta	2011	0013-4686	58	556 - 561	4.433
45	Enhanced photoelectrochemical performance of Ag-ZnO composite synthesized by spray pyrolysis technique.	N. L. Tarwal and P. S. Patil	Electrochimica Acta	2011	0013-4686	56	651 0- 651 6	4.433
46	Photoluminescence and photoelectrochemical properties of nanocrystalline ZnO thin films synthesized by spray pyrolysis technique	N. L. Tarwal , V. V. Shinde, A. S. Kamble, P. R. Jadhav, D. S. Patil, V. B. Patil, P.S. Patil	Applied Surface Science	2011	0169-4332	257	107 89- 107 94	2.538
47	Spray deposited superhydrophobic ZnO coatings via seed assisted growth	N.L. Tarwal, V.M. Khot, N.S. Harale, S.A. Pawar, S.B. Pawar, V.B. Patil and P.S. Patil	Surface & Coatings Technology	2011	0257-8972	206	133 6- 134 1	2.453
48	Enhanced optical modulation due to SPR in gold nanoparticles embedded WO ₃ thin films	P. M. Kadam, N. L. Tarwal , P. S. Shinde, S. S. Mali, R. S. Patil, A. K. Bhosale, H. P. Deshmukh, P. S. Patil	Journal of Alloys and Compounds	2011	0925-8388	509	172 9- 173 3	2.407
49	Photoluminescence of zinc oxide nanopowder synthesized by a combustion method	N. L. Tarwal , P. R. Jadhav, S. A. Vanalkar, S.S. Kalagi, , R. C. Pawar, J. S. Shaikh, S. S. Mali, D.S. Dalvi, P. S. Shinde, P. S. Patil	Powder Technology	2011	0032-5910	208	185 - 188	2.499

50	Electrochromic performance of mixed V ₂ O ₅ -MoO ₃ thin films synthesized by Pulsed Spray Pyrolysis Technique	C. E. Patil, P. R. Jadhav, N. L. Tarwal , H. P. Deshmukh, M. M. Karanjkar and P. S. Patil	Materials Chemistry and Physics	2011	0254-0584	126	711 - 716	2.427
51	Synthesis of CdS spongy balls with nanoconduits for effective light harvesting	S. A. Vanalakar, S. S. Mali, A. V. Moholkar, R. C. Pawar, N. L. Tarwal , D.S. Dalavi, Jin A Kim, Ye-bin Kwon, J. H. Kim, P. S. Patil	Electrochimica Acta	2011	0013-4686	56	276 2-276 8	4.433
52	Ethanol sensing properties of chemosynthesized CdO nanowires and nanowalls	A.S. Kamble, R.C. Pawar, N.L. Tarwal , L.D. More, P.S. Patil	Materials Letters	2011	0167-577X	65	148 8-149 1	2.269
53	Supercapacitor behavior of CuO-PAA hybrid films: Effect of PAA concentration	J. S. Shaikh, R. C. Pawar, D. S. Patil, N. L. Tarwal , P. S. Patil	Journal of Alloys and Compounds	2011	0925-8388	509	716 8-717 4	2.407
54	Superhydrophobic and transparent ZnO thin film synthesized by spray pyrolysis technique	N. L. Tarwal and P.S. Patil	Applied Surface Science,	2010		256	745 1-745 6	2.538
55	Synthesis and characterization of highly stable optically passive CeO ₂ -ZrO ₂ counter electrode	A.K. Bhosale, P.S. Shinde, N.L. Tarwal , R.C. Pawar, P.M. Kadam, P.S. Patil	Electrochimica Acta	2010	0013-4686	55	190 0-190 6	4.433
56	Synthesis and characterization of spray pyrolyzed nanocrystalline CeO ₂ -SiO ₂ thin films as passive counter electrodes	A. K. Bhosale , P.S. Shinde , N.L. Tarwal , P.M. Kadam , S.S. Mali, P.S. Patil	Solar Energy Materials & Solar Cells	2010	0927-0248	94	781 - 787	5.030
57	Polymer assisted deposition of electrochromic tungsten oxide thin films	S.S. Kalagi, D.S. Dalavi, R.C. Pawar, N.L. Tarwal , S.S. Mali, P.S. Patil	Journal of Alloys and Compounds	2010	0925-8388	493	335 - 339	2.407
58	Synthesis of electrochromic vanadium oxide by pulsed spray pyrolysis technique and its	C. E. Patil, N. L. Tarwal , P. S. Shinde, H. P. Deshmukh, P. S. Patil	J. Phys. D: Appl. Phys.	2009	0022-372	42	025 404 - 025	2.521

	properties						411	
59	Effective utilization of spray pyrolyzed CeO ₂ as optically passive counter electrode for enhancing optical modulation of WO ₃	A.K. Bhosale, N.L. Tarwal , P.S. Shinde, P.M. Kadam, R.S. Patil, S.R. Barman, P.S. Patil	Solid State Ionics	2009	0167-2738	180	132 4- 133 1	2.397
60	From beads-to-wires-to-fibers of tungsten oxide: electrochromic response	P.M. Kadam, N.L. Tarwal , P.S. Shinde, R.S. Patil, H.P. Deshmukh, P.S. Patil	Applied Physics A : Material Science & Processing	2009	0947-8396	97	323 - 330	1.694
Research Publications in Conference proceedings								
[1]	Nanoflakes of β -Co (OH) ₂ thin film for supercapacitor application	N.S.Harale, N.L. Tarwal , P.R. Jadhav, S.H. Pisal, I.S. Mulla, V.K. Rao, P.S. Patil	AIP Conference Proceedings	2013	0094-243X	153 6	515 - 516	
[2]	Electrochromic properties of vanadium oxide thin films prepared by PSPT: Effect of substrate temperature	C.E. Patil, P.R. Jadhav, N.L. Tarwal , H.P. Deshmukh, M.M. Karanjakar, A. A. Wali and P.S. Patil	AIP Conference Proceedings	2013	0094-243X	153 6	517 - 518	
[3]	Spray deposited ZnO: Au thin films for solar cell application	N.L. Tarwal , N.S. Harale, P.R. Jadhav and P.S. Patil	AIP Conf. Proc.	2012	0094-243X	144 7	393 - 394	
[4]	Studies on Electrophoretic deposition of boron film and its interaction with magnesium	R.S. Hyam, N.L. Tarwal , S.M. Jadhav, K.M.Subhedar and S.H. Pawar	Proc. of DAE Solid State Physics Symposium	2005	81-8372-019-6	50	427 - 428	
[5]	Fabrication and performance of the solar cell devices based on electrodeposited compact CZTS films	N.L. Tarwal , A.M. Nalawade, S. A. Rasal, R.P.Bhosale, A.E.Korade, R.V.Shejwal,P.S. Patil, J.H. Jang	Proceeding of International conference on Advances in Materials	2016	978-93-5254-490-5	2	306 - 308	

			Science					
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B) Orientation/Refresher courses attended

1	Orientation Course	UGC-HRDC-Goa University, Goa
2	Refresher course	UGC-HRDC-Rani Durgawati Vishwavidyalaya, Jabalpur
3	Refresher course	UGC-HRDC Goa University, Goa

C) FDP / Online training programs completed

1	Completed One Week FDP on Scilab organized by Rajarshi Shahu Mahavidyalaya Latur and IIT Bombay under PMMMNMTT, Department of Higher Education , MHRD, Govt. Of India.
2	Completed One week FDP on Moodle Learning Management System organized by Willington College, Sangali and IIT Bombay under PMMMNMTT, Department of Higher Education , MHRD, Govt. Of India.
3	Completed One Week FDP on Innovative Teaching Learning Methodologies conducted by Coibatore Institute of Technology and IIT Bombay under PMMMNMTT, Department of Higher Education , MHRD, Govt. Of India.
4	Completed One Week FDP on LaTeX conducted by Jamshedpur Womans College and IIT Bombay under PMMMNMTT, Department of Higher Education , MHRD, Govt. Of India.
5	Completed One Week FDP on Nanomaterials Characterization Techniques and Results Ananalysis Methodology: Idea, Innovations & Initiatives(Physics) conducted by S.N. Arts, D.J. Malpani Commerce & B.N. Sarda Science College, sangamner and UGC-HRDC Ssavitribai Phule Pune University.
6	Completed One Week National Online Faculty Development Program On “ICT Tools For Effective Teaching Learning” From 27 th April To 2 nd May 2020, Organized By School Of Mathematical Sciences, SRTMarathwada University, Nanded.
7	Completed “Faculty Development Program Online : An Approach For Technical Skill Enhancement (FDPTSE -2020)” Held From 5 th To 10 th May 2020, Organised By IQAC, Toshniwal College, Sengaon, Hingoli (M.S.), India.
8	Participated In Faculty Development Program On “Research Methodology: Tools And Techniques” Held From 18 th May To 22 nd May 2020, Organized By IILM College Of

	Engineering And Technology.
9	Participated In Faculty Development Program On “Outcome Based Education And Accreditation” Held From 25 th May To 29 th May 2020, Organized By IILM College Of Engineering And Technology.
10	Attended Five Day FDP On “Innovative Teaching Learning Methodologies Conducted By CIT-TLC From 6 th July To 10 July 2020.
11	Completed One Week Online Short Term Training Program On “Recent Development Of Advanced Materials And It’s Applications In Technology” Held During 17 th To 22 nd June 2020 Organized By STAMI, LSI, KDK College, Nagpur And BhiwapurMahavidyalaya, Bhiwapur.
12	Participated One Week Online Short Term Training Program On “Recent Trends And Application Of Solar Photovoltaic Energy System” Held During 2 nd To 6 th June 2020, Organized By Department Of Electronics And Telecommunication Engineering With IETE And ReTranspower Energy Solution, Amravati.
13	Successfully Completed Four Days Online Administrative Training Program On “Technology For Effective Administrative” Held During 11-14 th May 2020, Organized By SRTM University, Nanded.
14	Participated In One Day National Level Faculty Development Program On “MOOC’s, E-Learning And E-Content In Higher Education” Held On 13 th May 2020, Organized By Government First Grade College For Women, Chamrajpuet, Bangalore.
15	Successfully Completed Online Training Program On “Educational Video Creation: E-Content Development (EVC-2020)” Held On 11-13 th May 2020, Organized By Toshniwal College, Sengaon, Hingoli.
16	Attended The FDP Webinar On “Moodle: A Quick Tour” Held On 12 th June 2020, Organized By PG And Research Department Of Computer Science, Chikkanna Government College, Tirupur-02.
17	Participated In National Level Webinar On “E- Learning And E-Content” Held On 8 th June 2020, Organized By N. D. College Of Commerce, Kandivalli (W), Mumbai.
18	Participated In Two Day National Webinar On “Online Teaching Tools” Held On 9-10 th June 2020, Organized By Internal Quality Assurance Cell And Faculty Of Science, Shivaraj College, Gadhinglaj.

19	Participated In National Workshop On “Google Apps For Education And Moodle” Held On 2-3 rd July 2020, Organized By IQAC And Department Of Commerce, Rajaram College, Kolhapur.
20	Participated In National Webinar On “E-Content Creation And E-Learning Through MOOC’s” Held On 29-30 th May 2020, Organized By “Barr. Balasaheb Khardekar Resource Center And Department Of Library And Information Science” Shivaji University, Kolhapur.

D) IPR training

1	Participated In Webinar On “Indian Filing And International Filing Procedure (Patent, Trademark And Copyright) - Do's And Don'ts” Held On April 2020 Organized By BrainiacIP Solution And Sponsored By IP Basket.
2	Attended Online Webinar On “Intellectual Property Right (IPR) And Patent Filing” Held On 3 rd May 2020 Organized By IQAC, S.K. Mahavidyalaya, Ausa, Latur.
3	Participated In National Level Webinar On “Role Of WIPO In Preservation Of Intellectual Property” Held On 8 th May 2020 Organized By Dayanand College Of Law, Latur.
4	Participated In Two Day Online National Workshop On “Awareness Of Intellectual Property Rights: A Need Of The How” Organized By P. G. Department Of Law, Shivaji University, Kolhapur Held On 8 th And 9 th May 2020.
5	Participated In The Webinar On “Patent Filing And Prosecution” Held On 23 rd May 2020 Organized By KPR Institute Of Engineering And Technology, Arasur, Coimbatore.
6	Participated In One Day Faculty Development Programme On “Intellectual Property Right: Procedures And Policies” Held On 1 st June 2020, Organized By Internal Quality Assurance Cell, NES’s Science College, Nanded, Maharashtra.
7	Participated In Webinar On “Patents And Intellectual Property Rights” Held On 10 th June 2020, Organized By Department Of Civil Engineering, RMD Sinhgad School Of Engineering, Warje, Pune.

E) Webinar attended

1	Attended One Day International Conference On “Energy Conversion And Storage Technologies” Held On 30 th April 2020 At ShriPanchamKhemrajMahavidyalaya, Sawantwadi.
2	Attended “Research Methodology Webinar” Organized By Department Of Chemistry Held On 30 April 2020 At K. B.Patil College, Vashi (Navi Mumbai).
3	Participated In Webinar On “Supercapacitors, Solar Cell Devices And Solar Thermal Technology” Held On 11 To 14 May 2020 By Physics Department And Solar Energy Research Center (SERC), RCOEM, Nagpur.
4	Participated In “International Web Conference On Science, Engineering And Technology (IWCSET-2020)” Held On 15-16 May 2020 Organized By Society For Technologically Advanced Materials Of India (STAMI).
5	Participated In Two Day National Online Workshop On “Nanomaterials For Human Safety And Environment ” Held On 15 -16 May 2020 Organized By Department Of Physics, K.M. E. Society’s G. M. Momin Women’s College, Mumbai.
6	Participated In Online International Conference On “Biodiversity Conservation And Tourism” Held On 17 th May 2020 Organized By S. H.Kelar College of arts, Commerece and Science, Devgad.
7	Participated In Online Workshop On “Robotics Basics And New Technologies” Held On 17 th May 2020, Organized By ALTEKIN Automation And Robotics.
8	Attended Webinar On “Effective Research Writing Skills And Publication” Held On 22 nd May 2020 Organized By Department Of Civil Engineering, S. C. S College Of Engineering Dhangawadi, Pune.
9	Attended A Webinar Series On “Modern Antennas For Wireless Systems” Held During 22-24 May 2020 Organized By SRCCEM, Nagpur.
10	Participated In “Webinar Lecture Series On Modern Physics And Materials Science” Held From 26 To 30 May 2020 Organized By Govt. Holkar Science College, Indore (M.P.), India.
11	Participated In National Level Online Webinar On “General Characteristics Of d-Block Elements –NET Examination” Held On 1 June 2020 Organized By Department Of Chemistry, Government Arts College (A), Salem-7, Tamil Nadu, India.

12	Participated In One Webinar On “Let’s Talk About Science: How, What And Why” Held On 8 th June Organized By M. A. School Of Basic And Applied Sciences, Solan (HP), India.
13	Participated In One Day International Webinar On “Nanomaterials For Smart And Sustainable Energy Solutions” Held On 8 th June 2020 Organized By Department Of Physics Association With IQAC, M. P. College, Panvel.
14	Participated In One Day Online National Webinar On Soft Skills And Creative Thinking In Chemical And Physical Science Held On 8 th June 2020, Organized By Department Of Physical And Chemical Sciences “Jalgao District Maratha VidyaPrakashak Co-Op Samaj’s College, Yawal, Jaljaon.
15	Participated In International Webinar On “Resaerch Proposal Writing” Held On 9 th June 2020, Organized By CMRTC, CMR Technical Campus, Hyderabad.
16	Participated In Three Day Faculty Development Program On “Data Science With Python Programming” Held On 14 th June 2020, Organized By Department Of Computer Science And Electronics, Smt. K. W. C. College, Sangali.
17	Participated In Online Webinar On “3d Printing Technology” Held On 13 th June 2020, Organized By IIR, Keelkattalai, Chennai.
18	Participated In One Day National Level Webinar On “Recent Trends In Nanotechnology And Its Applications” Held On 17 th June 2020, Organized By S.S.S.K.R. InnaniMahavidyalay, Karanja (Lad), Washim.
19	Participated In National Online Seminar On “Applied Materials And Their Applications” Held On 19 th June 2020, Organized By Department Of Physics, RCS College, Kolhapur.
20	Participated In Science Leadership Workshop On “Mentoring, Collective Leadership, Problem-Solving, Conflict-Resolution, Time Management, Women In Science, Active Listening, Cross-Cultural Communication, Lab Culture etc” Held On 22-28 th June, Organized By Central University Of Punjab, Bathinda, India.
21	Participated In National Webinar On “Raman Effect And Its Applications” Held On 25 th June 2020, Organized By Department Of Studies In Physics, Davangere University, Davangere.
22	Participated In International Webinar On “Photonics Crystal Fiber And Its Applications” Held On 29 th June 2020, Department Of Electronics And Telecommunication, Electronics Engineering And Optiwave Canada, Nerul, Navi Mumbai.

23.	Participated In National Webinar On “Solar Technology” Held On 4 th June 2020, Organized By Department Of Physics, NevjabaiHitkarini College, Bramhapuri, Chandrapur (M.S.).
24	Participated In “International Conference On Recent Trends In Advanced Materials-2020” Held On 6 th June 2020, Organized By Nevjabai Hitkarini College, Bramhapuri, Chandrapur (M.S.).
25	Participated In “Space Science And Technology The Learning” Program, Conducted By “Indo Science Education Trust, Pune” And Successfully Completed The Course Parameters.

F) Conferences/workshops Attended: -

1	50 th Department of Atomic Energy – Solid State Physics Symposium (DAE-SSPS)-2005 held at BARC, Mumbai
2	NASMAT-2006 organized by Department of Physics, Shivaji university, Kolhapur
3	National Seminar on “New Horizon in Physics” (NS-NHP-2007) Y.C. Institute, Satara
4	First Interdisciplinary Shivaji University (India) and Hanyang University (South Korea) Bilateral Summit
5	International conference on Advanced Materials and Applications (ICAMA- 2007) organized by Department of Physics, Shivaji university, Kolhapur
6	52 th DAE- Solid State Physics Symposium – 2007 held at Mysore.
7	ICNAMA 2008 organized by Department of Physics, Shivaji university, Kolhapur
8	Raman Memorial Conference – 2008, Pune University
9	GREENTECH-2009
10	International Workshop on Nanotechnology and Advanced functional Materials (NTAFM-09), NCL Pune 2009
11	National Conference on Commercialization of Renewable Energy technology (CRET-2009), D. Y. Patil University, Kolhapur.
12	21 st Annual General Meeting ,MRSI, Sardar Patel University, VallabhVidyanagar, Gujarat
13	National Seminar on Advanced Material (NSAM-2010), Shivaji University, Kolhapur
14	ENERGY TECH- 2010, Shivaji University, Kolhapur.
15	National Conference on Recent Trends in Harnessing of Non-Conventional Energy Resources organized by Vivekanand College, Kolhapur.
16	National Seminar on Physics of Materials and Materials Based Device Fabrication (NSPM-MDF), Shivaji University, Kolhapur.
17	3 rd Symposium on Solar and Sustainable Energies, RISE-GIST, Gwangju.
18	IUMRS Busan, South Korea.
19	ENGE -2012, Jeju, South Korea.
20	SWEET-2013, KDR center, South Korea.
21	2013 Spring meeting of Korea Photovoltaic Society (KPVS), Sunggukwan University, South

	Korea.
22	Global Photovoltaic Conference 2013 GPVC 2013, BEXCO, Busan, South Korea
23	2014 Spring meeting of Korea Photovoltaic Society (KPVS), EXCO, Daegu, South Korea.
24	National Conference on Recent trends in Biophysics held at Nipani
25	National Conference on Materials for future technology held at Rajaram College, Kolhapur.
26	National Conference on Recent trends in Physics held at YCIS, Satara.
27	Avishkar-2014/2015 Dahiwadi (district level Competition)
28	National Conference on Environmental Biotechnology held on LBS college Satara on 29-30 Dec 2014
29	Workshop on Exam, held on LBS college Satara.
30	Workshop on SET-NET guidance held on LBS college Satara.
31	Avishkar-2014/2015 (Central) Shivaji University, Kolhapur.
32	Awareness Workshop of UGC-DAE Consortium for Scientific Research, held at Department of Physics, Rajaram College, Kolhapur, Maharashtra on February 20-21, 2015.
33	International conference on "Emerging Trends in Basic and Applied Sciences on 10 March 2015 at K.H. ASCE College, Gargoti, Kolhapur.
34	Second International Conference on Science and Technology (ICSTS-2015) held at Colombo, Shrilanka.
35	Workshop on the Revised syllabus of Physics (B.Sc.III, Sem VI) at Krantisinh Nana Patil College Walwa, Dist-Sangli dated 25 Aug 2015.
36	Workshop on the Revised practical syllabus of Physics (B.Sc.III) at Yashwantrao Chavan Institute of Science, Satara dated 28 Aug 2015.
37	Avishkar Competition at Balasaheb Desai College Patan dated 15 Dec 2015
38	Avishkar Competition at Shivaji University, Kolhapur dated 22 Dec 2015
39.	National Conference on Materials for Energy Conversion and Storage (NCMECS-2016) 12-13 Feb 2016 Pimpri, Pune.
40.	National seminar on 'Scope and Opportunities for Skill based courses in Industries' 6 May 2016 at LBS College Satara.
41	International Conference on Advances in Materials Science (ICMES-2016) at Raje Ramrao Mahavidyalaya Jath, on 7-8 december 2016
42	One day workshop on Preparation of research paper and poster or model at Chhatrapati Shivaji College, Satara at 1 st Oct 2016.
43	One day workshop on Vittiya Saxarta Prashikshan organized by LBS College Satara on 21 January 2017.
44	One day Avishkar-Orientation Programme organized by Chhatrapati Shivaji College, Satara and Shivaji University, Kolhapur on 3 rd September 2016.
45	National Seminar on Industrial Interactions & Placement organized by LBS College, Satara on 19 th April 2017.

46	International workshop on Abroad Research Opportunities for students organized by Yashvantrao Chavan Institute of Science, Satara and Savitribai Phule Mahila Mahavidyalaya Satara on 8 th March 2017.
49	Two day National Conference on Water conservation for agriculture drought prone area organized by LBS college Satara on 3 and 4 th Feb 2017
50	National Conference on Environmental problems and Biodiversity held on LBS college Satara on 24-25 Jan 2017

G) Papers presented/accepted in International Conferences / Symposia:

Best poster awards: 03; Outstanding Poster Award: 01 (Total: 04 awards)

No	Name of Author/s	Year	Title of the paper	Name of the symposia /conference	Sponsoring agency
1.	S.S.Mahajan, S.H.Mujawar, P.S.Shinde, A.I.Inamdar, N.L. Tarwal , P. S.Patil	20- 22 Jan 2007	Investigation on iono-optical properties of MoO ₃ Thin Films synthesized by Spray Pyrolysis Technique	National Seminar on New horizons in Physics	Satara
2.	N.L. Tarwal , A.I. Inamdar, Y.V. Patil, M.T. Patil, P.B. Danane, V.B. Patil, S.H. Mujawar, P.S. Shinde, S. Bhattar, M.V. Takale, S.R. Patil and P. S. Patil	15-17 Nov. 2007	Tunable morphologies of spray deposited zinc oxide with 3d transition metals and tin catalysts	International Conference on Advanced Materials and Applications (ICAMA-2007)	UGC, New Delhi (India) and Shivaji University, Kolhapur
3.	S.S. Mahajan, S.H. Mujawar, P.S. Shinde, A.I. Inamdar, S.P. Shinde, N.L. Tarwal and P. S. Patil	15-17 Nov. 2007	Electrochromic properties MoO ₃ thin films synthesized by Spray Pyrolysis Technique	International Conference on Advanced Materials and Applications (ICAMA-2007)	UGC, New Delhi (India) and Shivaji University, Kolhapur
4.	P.M. Kadam, N.L. Tarwal , P.S. Shinde, S.H. Mujawar, A.I. Inamdar, H.P.	15-17 Nov. 2007	Evolution of unique morphology in pulsed spray pyrolyzed tungsten oxide thin films and their	International Conference on Advanced Materials and Applications	UGC, New Delhi (India) and Shivaji University,

	Deshmukh and P. S. Patil		properties	(ICAMA-2007)	Kolhapur
5.	S.H.Mujawar, P.S.Shinde, A.I.Inamdar, S.P.Shinde, N.L. Tarwal and P. S. Patil	15-17 Nov. 2007	Electrochromic properties of MnO ₃ thin films synthesized by Spray Pyrolysis Technique	International Conference on Advanced Materials and Applications (ICAMA-2007)	UGC, New Delhi (India) and Shivaji University, Kolhapur
6.	J.S.Shaikh, A. D. Kadam, R.C.Pawar, N.L. Tarwal , P.S.Shewale, H.P. Deshmukh and P. S. Patil [AWARD WINNER]	15-17 Nov. 2007	Quantum size effect in Copper Oxide prepared by polymer assisted deposition	International Conference on Advanced Materials and Applications (ICAMA-2007)	UGC, New Delhi (India) and Shivaji University, Kolhapur
7.	R.C.Pawar, P.M.Kadam, J.S.Shaikh, N.L. Tarwal , S.S. Mali, D.S.Dalavi and P. S. Patil	15-17 Nov. 2007	Polymer assisted fabrication of WO ₃ -CNT nanocomposite	International Conference on Advanced Materials and Applications (ICAMA-2007)	UGC, New Delhi (India) and Shivaji University, Kolhapur
8.	A.K. Bhosale, N. L. Tarwal , P. M. Kadam, P. S. Patil	24-28 Aug. 2008	Outstanding electrochemical stability and charge storage capacity of spray deposited undoped cerium oxide thin films	8 th International Meeting on Electrochromism (IME-8)	South Korea
9.	C.E. Patil, N.L. Tarwal , A.K. Bhosale, A.I. Inamdar, P.S. Shinde, P. S. Patil	24-28 Aug. 2008	Electrochromism in pristine V ₂ O ₅ and mixed WO ₃ -V ₂ O ₅ thin films prepared by pulsed spray pyrolysis technique	8 th International Meeting on Electrochromism (IME-8)	South Korea
10.	P. M. Kadam, N. L. Tarwal , C. E. Patil, S.S. Mali, H. P. Deshmukh, P. S. Patil	24-28 Aug. 2008	Electrochromic performance of WO ₃ -CNT and WO ₃ - Nano Au Electrodes	8 th International Meeting on Electrochromism (IME-8)	South Korea
11.	A.K. Bhosale, N.L. Tarwal , N.A. Jadhav, M.M. Mohite, P.M.	2008	Synthesis and characterization of spray deposited golf ball-like structured cerium oxide	International Conference on Nanomaterials for Advanced	Dept. of Chemistry and Dept. of Physics,

	Kadam, R.S. Patil and P. S. Patil		(CeO ₂) thin films	Applications (ICNAMA -2008)	Shivaji University, Kolhapur
12.	C.E. Patil, N.L. Tarwal , P.S. Shinde, H.P. Deshmukh and P. S. Patil	2008	Electrochromic properties of vanadium oxide thin films by pulsed spray pyrolysis technique	International Conference on Nanomaterials for Advanced Applications (ICNAMA -2008)	Dept. of Chemistry and Dept. of Physics, Shivaji University, Kolhapur
13.	N.L. Tarwal , P.S. Shinde, A.I. Inamdar, V.M. Khot and P. S. Patil	2008	Dynamic catalytic growth of ZnO by spray pyrolysis and their photoluminescence	International Conference on Nanomaterials for Advanced Applications (ICNAMA -2008)	Dept. of Chemistry and Dept. of Physics, Shivaji University, Kolhapur
14.	P.M. Kadam, N.L. Tarwal , P.S. Shinde H.P. Deshmukh, D.S. Patil, R.S. Patil and P. S. Patil	2008	Effect of Au nanoparticles and CNTs on the electrochromic WO ₃ thin films synthesized by Pulsed Spray Pyrolysis Technique	International Conference on Nanomaterials for Advanced Applications (ICNAMA -2008)	Dept. of Chemistry and Dept. of Physics, Shivaji University, Kolhapur
15.	S.S. Mahajan, P.S. Shinde, A.I. Inamdar, N.L. Tarwal , S.S. Mali and P. S. Patil	2008	Effect of substrate temperature on structural, optical and electrochromic properties of polycrystalline MoO ₃	International Conference on Nanomaterials for Advanced Applications (ICNAMA -2008)	Dept. of Chemistry and Dept. of Physics, Shivaji University, Kolhapur
16.	N. L. Tarwal , P. S. Shinde, P. S. Patil	July 9-11, 2009	Nickel mediated ZnO thin films synthesized by SPT and their PL properties	Int. workshop on Nanotechnology and Advanced Functional Materials	NCL, Pune
17.	S. S. Mahajan, S. H. Mujawar, P. S. Shinde, A. I. Inamdar, R. C. Pawar, N. L.	July 9-11, 2009	Studies on structural, optical and EC properties of Spray deposited MoO ₃ thin films	Int. workshop on Nanotechnology and Advanced Functional Materials	NCL, Pune

	Tarwal, S. S. Mali, P. S. Patil				
18.	P. M. Kadam, D. S. Dalavi, S. S. Kalagi, N. L. Tarwal, P. S. Patil [Excellent poster Award]	19-22 Sept, 2011	Chemical Synthesis of Nanoporous Electrochromic NiO	IUMRS-ICA- 2011, 12 th International Conference in Asia	Taipei, Taiwan
19.	N.L. Tarwal, N. S. Harale, S.A. Pawar, P.R. Jadhav, R.S. Devan, Y. R. Ma, P. S. Patil	2012	Spray derived surface plasmonic Ag-ZnO& Au-ZnO nanocomposites for solar cell Application	1 st International Conference on Physics of Materials and Materials Based Device Fabrication (ICPM-MDF-2012)	Department of Physics, Shivaji University Kolhapur
20.	N.S. Harale, D.S. Patil, P.R. Jadhav, S.A. Pawar, N.L. Tarwal, P. S. Patil	2012	Electrochemical capacitive behavior of cobalt oxide thin films synthesized by aqueous chemical route	1 st International Conference on Physics of Materials and Materials Based Device Fabrication (ICPM-MDF-2012)	Department of Physics, Shivaji University Kolhapur
21.	P.M. Kadam, D.S. Dalavi, N.L. Tarwal, H.P. Deshmukh, R.S. Patil, P. S. Patil	2012	Electrochromic Devices Based on WO ₃ Nanostructured Electrode by Pulsed Spray Pyrolysis	1 st International Conference on Physics of Materials and Materials Based Device Fabrication (ICPM-MDF-2012)	Department of Physics, Shivaji University Kolhapur
22.	C. E. Patil, N. L. Tarwal, P. R. Jadhav, H. P. Deshmukh, M. M. Karanjakar, P. S. Patil	2012	Electrochromic performance of V ₂ O ₅ -WO ₃ thin films synthesized by pulsed spray pyrolysis technique	1 st International Conference on Physics of Materials and Materials Based Device Fabrication (ICPM-MDF-2012)	Department of Physics, Shivaji University Kolhapur
23.	S.A. Vanalakar, S.S. Mali, R.C. Pawar, N.L. Tarwal, A.V. Moholkar, P. S. Patil	2012	Photoelectrochemical properties of CdS sensitized ZnO: Effect of nanorod length	1 st International Conference on Physics of Materials and Materials Based Device Fabrication (ICPM-MDF-2012)	Department of Physics, Shivaji University Kolhapur

24.	N. L. Tarwal , A. V. Rajgure, J.Y. Patil, S.S. Suryavanshi, P. S. Patil	2012	Enhanced gas sensing performance of spray derived surface plasmonic Ag-ZnO nanocomposites	1 st International Conference on Physics of Materials and Materials Based Device Fabrication (ICPM-MDF-2012)	Department of Physics, Shivaji University Kolhapur
25.	V.V. Shinde, H. Nadgouda, N.L. Tarwal , P.R. Jadhav, H.P. Deshmukh, P. S. Patil	2012	Antibacterial activity of hydrothermally grown ZnO nanoparticles	1 st International Conference on Physics of Materials and Materials Based Device Fabrication (ICPM-MDF-2012)	Department of Physics, Shivaji University Kolhapur
26.	D.S. Dalavi, A.J. More, N.L. Tarwal , R.S. Patil, R.S. Devan, Y.R. Ma, P. S. Patil	2012	Enhanced Optical Modulation of Electrodeposited Nanostructured WO ₃ Thin Film	1 st International Conference on Physics of Materials and Materials Based Device Fabrication (ICPM-MDF-2012)	Department of Physics, Shivaji University Kolhapur
27.	N. S. Harale, N. L. Tarwal , P. R. Jadhav, S. H. Pisal, I. S. Mulla, V. K. Rao, P. S. Patil	1-2 Feb. 2013	Nanoflakes of β -Co(OH) ₂ thin film for supercapacitor application	International Conference on Recent Trends in Applied Physics & Materials Science	Govt. College of Engg. & Techn. Bikaner, Rajasthan, INDIA.
28.	C. E. Patil, P. R. Jadhav, N. L. Tarwal , H. P. Deshmukh, M.M. Karanjkar, A. A. Wali, P. S. Patil	1-2 Feb. 2013	Electrochromic properties of vanadium oxide thin films prepared by PSPT: Effect of substrate temperature	International Conference on Recent Trends in Applied Physics & Materials Science	Govt. College of Engg. & Techn. Bikaner, Rajasthan, INDIA.
29.	N.L. Tarwal , P.S. Shinde, A.I. Inamdar, V. Khot, N. Jadhav, M. Mohite and P. S. Patil	16-24 Dec. 2008	Co and Ni mediated catalytic growth of novel ZnO microstructures and their properties	DAE-SSPS 2008	B.A.R.C, Bombay
30.	N. L. Tarwal , P. S. Patil	8-9 Feb. 2009	Making electrochromic windows	National seminar & exhibition on recent trends & opportunities in Green Buildings & products	Shivaji University, Kolhapur

31.	S. A.Vhanalkar, N. L.Tarwal, P. S. Patil	21-23 Oct. 2009	Solution based synthesis of CdS-ZnO and their PEC performance	Commercialization of Renewable Energy Technology	Dr. D. Y. Patil University, Kolhapur
32.	P. R.Jadhav, R.C.Pawar, N. L. Tarwal,P. S. Patil	21-23 Oct. 2009	Growth of MnO ₂ via soft chemical route forsupercapacitor application	Commercialization of Renewable Energy Technology	Dr. D. Y. Patil University, Kolhapur
33.	N. L. Tarwal, P. S. Patil [AWARD WINNER]	21-23 Oct. 2009	Spray deposited Au-ZnO: A tunable localized surface plasmonic nanocomposite	Commercialization of Renewable Energy Technology	Dr. D. Y. Patil University, Kolhapur
34.	D S Dalavi, M J Suryavanshi, D SPatil, S Skalagi, NL Tarwal, P. S. Patil	Dec. 7-9, 2009	Surfactant assisted growth of chemically bath deposited NiO thin films and their EC performance	8 th National conference on Solid stateIonics: Materials for novel devices	HS Gour University, Sagar, M P
35.	N L Tarwal, P M Kadam, P. S. Patil	Feb. 9-11, 2010	Spray deposited Au:ZnO and Ag:ZnO thin film solar cells	21 st AGM of MRSI: Advanced Ceramic Materials: monoliths to composites	Sardar Patel University, Vallabh Vidyanagar, Gujarat
36.	S.A.Vanalakar, R.C.Pawar, N.L. Tarwal, P.R.Jadhav, M.P.Survanshi N.D.Koshti, P. S. Patil	Mar 19-20, 2010	Wet Chemical synthesized CdS – modified ZnO nanorod-array photoelectrode: Preparation, characterization, and application to photoelectrochemical cells	National Seminar on Advanced Materials-2010 (NSAM)	Dept. of Physics, Shivaji University, Kolhapur
37.	C.E.Patil,P.R.Jadhav, N.L.Tarwal and P. S.Patil	Mar 19-20, 2010	MoO ₃ doped vanadium oxide thin films for Smart Windows	National Seminar on Advanced Materials-2010 (NSAM)	Dept. of Physics, Shivaji University, Kolhapur
38.	P. R. Jadhav, N. L.Tarwal, V. V. Shinde, P. S. Patil	Mar 19-20, 2010	Growth of MnO ₂ nanobeads via a facile soft chemical route	National Seminar on Advanced Materials-2010 (NSAM)	Dept. of Physics, Shivaji University, Kolhapur

39.	N L Tarwal , PM Kadam, P. S. Patil	Mar 19- 20, 2010	Spray deposited ZnO: Au and ZnO: Ag thin films for solar cells	National Seminar on Advanced Materials-2010 (NSAM)	Dept. of Physics, Shivaji University, Kolhapur
40.	A.K. Bhosale, S.S.Mali, N. L. Tarwal , P. M. Kadam C. E. Patil, S. S. Mahajan, and P. S. Patil	Mar 19- 20, 2010	Synthesis and characterization of spray pyrolyzed nanocrystalline CeO ₂ -SiO ₂ thin films forelectrochromic applications	National Seminar on Advanced Materials-2010 (NSAM)	Dept. of Physics, Shivaji University, Kolhapur
41.	D. S. Dalavi, S. S.Pol, N. L. Tarwal , P. S. Patil	Dec 15- 16, 2010	Chemical synthesis of NiO microspheres with flake like nanostructures and their application in electrochromic smart windows	National Conference on Recent Trends in Harnessing of Non-Conventional Energy Resources	Dept. Of Chemistry Vivekanand College, Kolhapur.
42.	N. L. Tarwal , S. A. Pawar, N. S. Harale, P. R. Jadhav, P. S. Patil	Dec 15- 16, 2010	A tunable localized surface plasmonic Au-ZnO nanocomposite by spray pyrolysis for solar cell application	National Conference on Recent Trends in Harnessing of Non- Conventional Energy Resources	Dept. Of Chemistry Vivekanand College, Kolhapur.
43.	P. R. Jadhav, A. A.Patil, N. S. Harale, N. L. Tarwal , P. S. Patil	Dec 15- 16, 2010	Growth of MnO ₂ thin films by SILAR method for supercapacitor electrode	National Conference on Recent Trends in Harnessing of Non- Conventional Energy Resources	Dept. Of Chemistry Vivekanand College, Kolhapur.
44.	D. S. Dalavi, S. S.Pol, S. S. Kalagi, N.L. Tarwal and P. S.Patil	Jan 21- 22, 2011	Hierarchical nanostructure of NiO thin film and its electrochromic performance	Advances in Synthetic Methodologies and New Materials	Dept. Of Chemistry Shivaji University, Kolhapur
45.	P. R. Jadhav, A. A.Patil, A. D. Ghorpade, N. S. Harale, N. L. Tarwal , S. S. Mahajan, A. A. Wali, P. S. Patil	Jan 21- 22, 2011	Effect of SILAR cycle on the growth of manganese oxide thin films for supercapacitor electrode	Advances in Synthetic Methodologies and New Materials	Dept. Of Chemistry Shivaji University, Kolhapur

46.	N. L. Tarwal , S. A.Pawar, N. S. Harale, P. R. Jadhav, P. S. Patil	Jan 21-22, 2011	Physics of Au-ZnO nanocomposites solar cells	Advances in Synthetic Methodologies and New Materials	Dept. Of Chemistry Shivaji University, Kolhapur
47.	C. E. Patil, P. R. Jadhav, N. L. Tarwal , P. M. Kadam, H. P. Deshamukh and P.D. Patil	Jan 21-22, 2011	Electrochromic performance of mixed MoO ₃ -V ₂ O ₅ thin films	Advances in Synthetic Methodologies and New Materials	Dept. Of Chemistry Shivaji University, Kolhapur
48.	P.R. Jadhav, A.A.Patil, A.D. Ghorpade, S.A.Pawar, N.S. Harale, N.L. Tarwal , A. A. Wali,P. S. Patil	Feb. 17-18, 2011	SILAR grown manganese oxide thin films for supercapator applications	National Seminar on Physics of Materials and Materials Based Device Fabrication-(NSPM-MDF-2011)	Dept. Of Physics, Shivaji University, Kolhapur
49.	N.L. Tarwal , N.S. Harale, S.A. Pawar, P.R. Jadhav, P. S. Patil	Feb. 17-18, 2011	Physics of solar cells based on Ag-ZnO& Au-ZnO nanocomposites	National Seminar on Physics of Materials and Materials Based Device Fabrication-(NSPM-MDF-2011)	Dept. Of Physics, Shivaji University, Kolhapur
50.	C.E. Patil, N.L. Tarwal , P.R. Jadhav,H.P.Deshmukh,P.M. Kadam, R.S.Patil, P. S.Patil	Feb. 17-18, 2011	Improved electrochromic performance of mixed WO ₃ -V ₂ O ₅ thin films by pulsed spray pyrolysis	National Seminar on Physics of Materials and Materials Based Device Fabrication-(NSPM-MDF-2011)	Dept. Of Physics, Shivaji University, Kolhapur
51.	V.V. Shinde, N.L. Tarwal , J.S. Shaikh, S. B. Arable, P. S.Patil	Feb. 17-18, 2011	Synthesis of silver nanoparticles and their optical properties	National Seminar on Physics ofMaterials and MaterialsBased Device Fabrication-(NSPM-MDF-2011)	Dept. Of Physics, Shivaji University, Kolhapur
52.	M.M. Karanjkar, N.L. Tarwal , A.S.Vaigankar, A.K.Bhosale, P. S. Patil	Feb. 17-18, 2011	Structural and Mössbauer properties of nickel cadmium ferrites Synthesized by standard ceramic process	National Seminar on Physics of Materials andMaterials Based Device Fabrication-(NSPM-MDF-2011)	Dept. Of Physics, Shivaji University, Kolhapur
53.	N. L. Tarwal , N. S.Harale, P.R. Jadhav, P. S. Patil	19-23th Dec 2011	The spray deposited ZnO: Au thin films for solar cell application	56 th DAE Solid State symposium	SRM University , Kattankulathur Tamilnadu

54.	N. S. Harale, P. R. Jadhav, S. A. Pawar, N. L. Tarwal , I. S. Mulla, V. K. Rao, P. S. Patil.	14 th & 15 th Dec. 2012	Nanoflakes of – Co(OH) ₂ Thin Film for supercapacitor Application .	National Conference on Recent Trends In Nanotechnology 2012	Vivekanand college, Kolhapur
55.	V. L. Patil, N. S. Harale, N. L. Tarwal , D.S. Dalvi, V.V. Shinde, P. P. Waifalkar, P. S. Patil	04-05 Jan 2013	Optoelectronic properties of spray deposited SnO ₂ thin films	NSPM-MDF-2013	Deptt. Of Physics, Shivaji University, Kolhapur
56.	P. S. Patil, N.S. Harale, P.R. Jadhav, S. A. Pawar, N. L. Tarwal , I. S. Mulla, V. K. Rao,	04-05 Jan 2013	Electrochemical Behavior of Nanoflakes of Cobalt Hydroxide Thin Films	NSPM-MDF-2013	Deptt. Of Physics, Shivaji University, Kolhapur
57.	N. L. Tarwal , T. Prem Kumar, H. – S. Shim, J. –H. Jang and P. S. Patil	26-30 Aug 2012	Structural and optical properties of cobalt doped ZnO thin films synthesized by spray pyrolysis	IUMRS	Busan, South Korea
58.	T. Premkumar, N. L. Tarwal , H. –S. Shim, J. H. Wi, J. –H. Jang	26-30 Aug 2012	The effect of the self-organized crystal substrate orientation on the structural, surface and optical properties of CdS thin films	IUMRS	Busan, South Korea
59.	N. L. Tarwal , T. Prem Kumar, H. S. Shim, J. H. Wi, P. S. Patil, J. H. Jang	16-19 Sept 2012	Spray deposited Ag-ZnO and Au-ZnO thin films for solar cells	ENGE	Jeju, Sout Korea
60.	T. Prem Kumar, YonkilJeong, HojungJeong, N.L. Tarwal , KwanWoo Nam, Jae-Hyung Jang	29-30 April 2013	Fabrication and evaluation of CIGS solar cells	2013 Spring meeting of Korea Photovoltaic Society (KPVS),	Sunggukwan University, South Korea.
61.	T. Prem Kumar, Maeng Jun Kim, HojungJeong, Sehyun Hwang, N.L. Tarwal , Yon KilJeong, Jae	16-21 June 2013	Fabrication and evaluation of CIGS solar cells	39 th IEEE Photovoltaic Specialist Conference	Florida

	Hyung Jang				
62.	S.H.Tamboli, R.B.Patil, N.L.Tarwal,	19-20 Sept 2014	Effect of oxidation temperature and thickness MgO planr optical waveguide	National Conference on Recent rends in Biophysics	Nipani
63.	N.S. Harale, N. L. Tarwal , I. S. Mulla, V. K. Rao, J.H. Kim, P. S. Patil	19-20 Sept 2014	Carbon Nanotubes Based Gas sensor for Detection of Toxic NO2 gas	National Conference on Recent rends in Biophysics	Nipani
64.	N.L.Tarwal , A.E.Korade, N.S.Harale, S.D.Patil, S.H.Tamboli, P.S.Patil, J.H.Jang	19-20 Sept 2014	Spray synthesized Mg-ZnO thin films for NO2 sensing application	National Conference on Recent rends in Biophysics	Nipani
65.	N.L.Tarwal , A.E.Korade, K.V.Gurav, S.H.Tamboli, J.H.Kim, P.S.Patil, J.H.Jang	26-27 Sept 2014	A route for getting compact CZTS absorber layers by electrodeposition for solar cell application	National Conference on Materials for future technology	Kolhapur
66.	M.S.Khandekar and N.L.Tarwal	10-11 Oct 2014	Effect of Ceria doping on Copper ferrite and its application as gas sensor	National Conference on Recent trends in Physics	Satara
67.	N.L. Tarwal, A.E. Korade, S.A.Rasal, R.A. Nalawade, M.S.Khandekar, P.S. Patil [YOUNG SCIENTIST AWARD]	19-21 May 2015	DSSC performance of Au-ZnO and Ag-ZnO thin films synthesized by spray pyrolysis technique	Second International Conference on Science and Technology (ICSTS-2015)	Colombo, Shrilanka.
68.	M.S. Khandekar, N.L. Tarwal	19-21 May 2015	Ce-doped Copper ferrite as a LPG sensor	Second International Conference on Science and Technology (ICSTS-2015)	Colombo, Shrilanka
69.	N.L. Tarwal , S. A. Rasal, R.P.Bhosale, K.V.Gurav, J.H. Kim, P.S. Patil, J.H. Jang [First prize]	12-13 Feb 2016	Fabrication and performance of the solar cell devices based on electrodeposited compact CZTS films	National Conference on Materials for Energy Conversion and Storage (NCMECS-2016)	Pimpri, Pune

	winner Poster Award]				
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H) Research Supervision for Completion of Academic Projects: (List of the number of M.Sc. students advised for their dissertations)

No	Name of the students	Year	Title of the M.Sc. dissertation (8)
1	Miss. V. B. Patil	2007	Preparation of the Sn doped ZnO thin films by Spray Pyrolysis Technique and their characterization
2	Mr. V.M. Khot	2009	Synthesis and characterization of seed assisted growth of ZnO thin films
3	Miss. M. K. Mohite	2009	Synthesis & characterization of undoped & SiO ₂ doped CeO ₂ thin films for ion storage device
4	Miss. N. A. Jadhav	2009	Synthesis and characterization of undoped and ZrO ₂ doped CeO ₂ thin films for ion storage device
5	Mr. M. P. Suryawanshi	2010	Synthesis and characterization of CdS-ZnO thin films for solar cell applications
6	Miss. N. D. Koshti	2010	Chemical bath deposited CdS thin films for photoelectrochemical solar cell applications
7	Mr. A. S. Joshi	2018	Synthesis of CIGS:ZnO nanocomposite by using Spray Pyrolysis Technique: Effect of Solution concentration
8	Mr. S.N.Pawar	2018	Effect of Substrate Temperature on the properties of CIGS:ZnO composite deposited by Spray Pyrolysis Technique

I) Research Papers Reviewed As a Reviewer in International Journals

1	Smart Materials and Structures	(IOP publications)	(1)
2	Dalton Transactions	(RSC publishing)	(7)
3	Journal of Materials Chemistry	(RSC publishing)	(8)
4	Crystal Engineering Communication	(RSC publishing)	(2)
5	Thin Solid Films	(Elsevier Publications)	(3)
6	Indian Journal of Pure and Applied Physics		(4)
7	Applied Surface Science	(Elsevier Publications)	(4)
8	J. Photochemistry and Photobiology	(Elsevier Publications)	(1)
9	ACS Applied Materials and Interfaces	(ACS Publications)	(2)
10	Journal of Alloys and Compounds	(Elsevier Publications)	(4)
11	Electrochimica Acta	(Elsevier Publications)	(6)
12	Journal of Semiconductors		(1)

13	RSC advances	(RSC publishing)	(2)
14	Journal of Magnetism and Magnetic Materials	(Elsevier Publications)	(1)
15	Materials Letter	(Elsevier Publications)	(1)
16	Journal of Analytical and Applied Pyrolysis	(Elsevier Publications)	(2)

I hereby declare that the above-mentioned information is true and correct to best of my knowledge and belief.

Place: Kolhapur

Date: 25/01/2021

Dr. N. L. Tarwal

(Please note: The provided information may change in future.)