

Curriculum Vitae



Dr. Sachin. V. Mukhamale (M.Sc, M.Phil, Ph.D, SET.)

Department Of Physics
Shri Pundlik Maharaj Mahavidyalaya
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Residential Address:

Helge Nagar,
 Gavande Militari Home,
 Buldana Road ,
 Nandura, Buldana-443404
 Maharashtra, India

Personal Details:

Nationality: Indian
Marital status: Double
Sex: Male
Date of Birth: 13/05/1985
Place of Birth: Washim(Maharashtra)
Languages Known:

Personal competencies

1. A manager with socio-technical blend.
2. Far-sighted.
3. Sensitive to the need of researchers, society, Regional, national & international priorities, Large demand.
4. An accomplished , integrity driven, creative, Meticulous, inquisitive, passionate manager, educational, administrator, writer, researcher, trainer, team builder, motivator, and a science enthusiast.
5. An emotionally intelligent and accountable art administrator.

English, Marathi, Hindhi

Educational Qualification:

Qualification	Specialisation or Subjects Or Titles	Year of passing	School / College / University /	Total marks %GPA	Any other relevant information
Qualification SET	Physical Science	(2018)	Saviribai Phule Pune University /	Pass	Pass
Ph.D	Physics (2014-18) Studies on Cd & Zn Based Semiconducting materials & Their Applications	(2018)	Saviribai Phule Pune University	A grade	Advanced Material Science & Nanotechnology
M.phil	Physics (2011- 2013) Binary and Ternary Semiconducting Material and Their Solar Applications	2013	Pune university	A grade	Advanced Material Science & Nanotechnology
M.Sc.	Physics (M.Sc.) He-dilution studies of a-Hy-Si Thin films deposited Hot Wire Chemical Vapour Deposition Method.	2011	Pune University	B grade	CM,MMP,ED, ELE,MEP, NP, AMS,SSP,SM, QM, MS, Project
B.Sc	Physics, chemistry, Math	2007	Amravati University	I class	Mini project & seminar
	Physics, chemistry, Math, Biology,	2005	Amravati State	II class	PCMB group

HSC	English, Marathi.		Board		
SSC	Science, Math, English, civics, Hindi History, Economics, Geography, Marathi	2003	Amravati State Board	II class	Sci & Math group

Professional Experience at M.Sc. Part-I and Part-II (Post-Graduate level)

- **Assistant Professor**, Department of Physics, Haribhai.V. Desai College, Shaniwar Wada, Pune, Maharashtra, India, **09th March – 15 May 2018.**
- **Assistant Professor**, Department of Physics, AnnaSaheb Magar Mahavidyalaya, Hadapasar Pune, Maharashtra, India, **2015-2016.**
- **Assistant Professor**, Department of Physics, AnnaSaheb Magar Mahavidyalaya, Hadapasar Pune, Maharashtra, India, **2014-2015.**
- **Assistant Professor**, Department of Physics, AnnaSaheb Magar Mahavidyalaya, Hadapasar Pune, Maharashtra, India, **2013-2014.**
- **Assistant Professor**, Department of Physics, AnnaSaheb Magar Mahavidyalaya, Hadapasar Pune Guidance for carrying out Material Science experiments, in Department of Physics, Advanced Material Science laboratory, University of Pune, Maharashtra, India, **2013-2014.**

Professional Experience at SSC, HSC and B.Sc. Part-I, Part-II and Part-II (Under-Graduate level)

- **Demonstrator**, Joint project between, Department of Physics, **LG-Electronics, Hanyang University, South Korea**, and **Department of Physics, University of Pune, India, 2013.** LG-Science Mobile Lab.
- **Demonstrator**, Joint project between, Department of Physics, **LG-Electronics, Hanyang University, South Korea**, and **Department of Physics, University of Pune, India, 2010--2011.** LG-Science Mobile Lab.

Professional Experience at School Basic Science

- **On-line e-tutoring For United state of America at Deccan Gymkhana, Pune , Maharashtra, India.2012.**

Professional Experience of Nanotechnology for Research Entrepreneur at Industries Level at MCED, INDIA, 2018.

- **“Banana powder Plant”** Lonawala Chikki and Gelli Food Product.
- **“Shop-Act License”,** For Research Entrepreneur.
- **“Fassi License”** for Research Entrepreneur.
- **“ISO-Number”** for Research Entrepreneur.

Fellowship and Award

Fellow ISRO (Project Assistant) on Novel electrochemical approach to prepare CuInGaSe₂ based solar cell using non aqueous bath” Department of Physics, University of Pune, India, (10/07/2012- 31/01/2013).

Award and Honors (Total -13)

- **“Excellent Potential Work in Educational field”** Department of Physics at Annasaheb Magar Mahavidyalaya, Hadapsar Pune in **(2015-2016)**.
- **“Best oral presentation”** in International symposium on ultrasonic **(ISU-2015)**, Focal Theme:Ultrasound in Biomedical and Industrial Applications, In Commemoration of Golden jubilee of Physics Department, And 40th Anniversary of Ultrasonic Society of India, RTM Nagpur University.
- **“Best oral presentation” in Emerging Trend in Physics (ETP-2015)**, Annatrao Pawar college (Arts, Commerce, Science, & Computer Science), Pirungut,Tal Mulshi, Dist Pune.
- **“Excellent Potential Work in Educational field”** Department of Physics at Annasaheb Magar Mahavidyalaya, Hadapsar Pune in **(2014-2015)**.
- **“Excellent Potential Work in Educational field”** Department of Physics at Annasaheb Magar Mahavidyalaya, Hadapsar Pune in **(2013-2014)**.
- **“DST-INSPIRE-CAMP, GOI, New Delhi, Best oral presentation & Best Demonstration (2011-12) Award”** Arts, Science and commerce college” Shri Dhokeshwar Mahavidyalaya, Ahamadnagar with LG-Science Mobile Lab.
- **“Dr. C.V. Raman Balvaidnyanik Workshop Best oral presentation & Best Demonstration Award”** Janseva Samajik, Sanskrutik, shaikshnik, Kala, and Krida Pratishthan, Rahuri Krishi vidyapith, Ahamadnagar, LG-Science Mobile Lab, **2012**.
- **“DST-INSPIRE-CAMP, GOI, New Delhi, (2010-11) , Best oral presentation & Best Demonstration Award”** at Department of Physics New Arts, Commerce and Science College, Shevgaon, Ahamadnagar with LG- Mobile Science Laboratory.
- **“DST-INSPIRE-CAMP, GOI, New Delhi, Best oral presentation & Best Demonstration (2010-11) Award”** Arts, Science and Commerce College, Rajur, Ta.Akole, Dist.Ahamadnagar, with LG- Mobile Science Laboratory.
- **“Best Research project Competition and Best oral presentation & Best Demonstration Award” Avishkar 2008, University of Pune, Board of College & University Development.**
- **“Best oral presentation” Science Club, 2007. B.B. Arts, N.B. Commerce, B.P. Science College, Digras, Dist Yavatmal.**
- **“First Position in Mathematics Colligate Charts” (2006-2007) R.A. Arts, Shri M, K, Commerce, Sci College, Washim, Department of Mathematics.**
- **“First Position in Mathematics Colligate Essay” (2004-2005) R.A. Art, Shri M, K, Commerce, Sci College, Washim, Department of Mathematics.**

Additional Responsibilities

- **Invited Talk, Demonstration, Operator and Management** Joint project between **LG-Electronics, Hanyang University, South Korea**, and Department of Physics, **University of Pune, India**, with LG- Mobile Science Laboratory, **2010-2018 onwards**.
- **Invited Talk, Research Entrepreneur at Industries Level at MCED, INDIA, 2017-2018 onwards**.
- **Invited Talk, Demonstration, Operator, commercial Market visit and Management** Nanotechnology for Research Entrepreneur at Industries Level at MCED, INDIA, **2016-2018 onwards**.

Teaching Experience & Their final year Project at Post Graduate M.Sc Part-I and Part-II level

- **M.Sc. Part-I**, PHY-UT- 603: Quantum Mechanics, PHY-UT- 602: Solid state Physics, (**EVEN-SEM-II-2018**).
- **M.Sc. Part-II**, PHY-UT- 802: Material Science, Physics, (**EVEN-SEM-IV-2018**)
- **M.Sc. Part-I**, PHY-UT- 503: Mathematical Method In Physics, PHY-UT- 505: Experimental Techniques In Physics- I, PHY UP- 506 Basic Physics Lab (**ODD-SEM-I-2015-16**).
- **M.Sc. Part-II**, PHY-UT- 702: Physics of Thin film, PHY-UT- 703: Material Science-I, PHY-UP-706 Physics of Thin films Lab, PHY-UT-704: NanoTechnology-I (**ODD-SEM-III-2015-16**).
- **M.Sc. Part-I**, PHY-UT-605: Experimental Techniques in Physics-II, PHY UP- 506 Basic Physics Lab (**EVEN-SEM-I-2016**).
- **M.Sc. Part-II**, PHY-UT- 802: Material Science, PHY-UT- 703: Material Science - I, PHYUP- 806 -Project (**EVEN-SEM-I-2016**).
- **M.Sc. Part-I**, PHY-UT- 503: Mathematical Method In Physics, PHY-UT- 505: Experimental Techniques In Physics- I, PHY UP- 506 Basic Physics Lab (**ODD-SEM-I-2014-15**).
- **M.Sc. Part-II**, PHY-UT- 702: Physics of Thin film, PHY-UT- 703: Material Science-I, PHY-UP-706 Physics of Thin films Lab, PHY-UT-704: NanoTechnology-I (**ODD-SEM-III-2014-15**).
- **M.Sc. Part-I**, PHY-UT-605: Experimental Techniques in Physics-II, PHY UP- 506 Basic Physics Lab (**EVEN-SEM-I-2015**).
- **M.Sc. Part-II**, PHY-UT- 802: Material Science, PHY-UT- 703: Material Science - I, PHYUP- 806 -Project (**EVEN-SEM-I-2015**).
- **M.Sc. Part-I**, PHY-UT- 503: Mathematical Method In Physics, PHY-UT- 505: Experimental Techniques In Physics- I, PHY UP- 506 Basic Physics Lab (**ODD-SEM-I-2013-14**).

- **M.Sc. Part-II**, PHY-UT- 702: Physics of Thin film, PHY-UT- 703: Material Science-I, PHY-UP-706 Physics of Thin films Lab, PHY-UT-704: NanoTechnology-I (**ODD-SEM-III-2013-14**).
- **M.Sc. Part-I**, PHY-UT-605: Experimental Techniques in Physics-II, PHY UP- 506 Basic Physics Lab (**EVEN-SEM-I-2014**).
- **M.Sc. Part-II**, PHY-UT- 802: Material Science, PHY-UT- 703: Material Science - I, PHYUP- 806 -Project (**EVEN-SEM-I-2014**).
- **10 project Completion** from M.Sc. Part-II -student on Materials Science and Nanotechnology (**2013-2014**).
- **10 project Completion** from M.Sc. Part-II -student on Materials Science and Nanotechnology (**2014-2015**).
- **10 project Completion** from M.Sc. Part-II -student on Materials Science and Nanotechnology (**2015-2016**).

Characterization Technique are Used for Research

- Photoluminescence Spectrometry (PLS)
- X-ray Photoelectron Spectroscopy (XPS)
- FTIR, UV-Visible Spectroscopy
- Transmission Electron Microscopy (TEM)
- Atomic Force Microscopy (AFM)
- Scanning Electron Microscopy and EDAX
- Raman Spectroscopy
- X-ray diffraction analysis
- I-V and C-V measurement Characterization technique
- Talyes step profilometer for thickness measurement
- Annealing in Indufurr Furnace

Instrument Handling Experience:

- HW- CVD technique
- PE-CVD technique
- DC-magnetron Sputtring
- Thermal evaporation technique
- Chemical Bath deposition technique
- Ultrasonic chemical bath deposition technique
- Colloidal solution (Nanoparticle synthesis) Method
- Two electrode deposition technique
- Three electrode deposition technique
- Spray Pyrolysis method

Software Known and Type-writing:

- TEM, SEM, FE-SEM and 2-D fractal analysis
- Foutron language, Image J software, 30 WPM Type writing for English and Marathi.

Foreign Visit

1. 4th NANOTODAY CONFERENCE, ELSEVIER, December 6-10, 2015, DUBAI.

Publication at International Level under thomus Reuter, peer reviewed, and UGC journal list:

Publications: Research Articles and Review

1. **Sachin Mukhamale**¹, N.B. Chaure* Synthesis and Characterization of ZnS thin films deposited by CBD and UCBD techniques **American Institute of Physics journal (Published : 05 FEB 2013)**
2. **Sachin Mukhamale**¹, Priyanka V.Tabhane², Archana Meshram³, Vilas A.Tabhane* The effect of Ultrasonication on CdS thin films deposited by using chemical bath deposition (UCBD) and (CBD) Chemical bath deposition., **International Journal of Science and Research (Published : 22-24 jan 2015)**
3. Sanjay Charalwar¹, Satish Goswami¹, **Sachin Mukhamale**², V.A. Tabhane* Investigation of comparative Behavior of some Thermoacoustical parameters of binary mixture of methanol, cyclohexane, **International Journal of Science and Research (Published : 22-24 jan 2015)**
4. Mahatme U.B.¹, Tabhane Priynaka², Dongare S.P³, Nakhate A.S⁴, **Mukamale S.V**⁵, Tabhane V.A⁶ Ultrasonic in the field of Conducting Polymers A Review, **International Journal of Science and Research (Published: 22-24 jan 2015)**
5. **Sachin V. Mukhamale**¹. Vilas A Tabhane* Study on Nanosonic & Nanoparticles of ZnS-ITO & Their nanoschottky diodes , revised **American Chemical Society- journal (Crystal growth & design) 2016.**

Submitted: Research Articles and Review

1. **Sachin V. Mukhamale**¹. Vilas A Tabhane* Nanoschottky ZnS bypass diode to enhance the efficiency of solar cell revised **Submitted American Chemical Society - journal (Nano-Letter).(2018)**
2. **Sachin V. Mukhamale**¹. Vilas A Tabhane* Experimental & theoretical 2-D simulation studies on micro structural growth of evolution of CZTS Thin films. **Submitted American Chemical Society - journal (ACS Nano- Letter).(2018)**

International Conference/Workshop/Seminars:

2. **Sachin Mukhamale¹**, 57th DAE – Synthesis and Characterization of ZnS thin films deposited by CBD and UCBD techniques; Solid State physics Symposium, Indian Institute of Technology, **Mumbai, (3-7, December- 2012).**
3. **Sachin Mukhamale¹**, The effect of Ultrasonication on CdS thin films deposited by using chemical bath deposition (UCBD) and (CBD) Chemical bath deposition. International symposium on Ultrasonic (**ISU-2015**), RTM Nagpur University, **Nagpur**, 40th Anniversary of Ultrasonic Society of India.
4. **Sachin Mukhamale¹**, Experimental & theoretical 2-D simulation studies on micro structural growth of evolution of CZTS Thin films 4th NANOTODAY CONFERENCE, December **6-10, 2015, DUBAI.**
5. **Sachin Mukhamale¹**, of PDEA'S Annasaheb Magar Mahavidyalaya, Hadapsar, Pune-411028, has contributed in organizing International conference “Inovative trend in Chemical, Physical, and Bioscience” (**ITCPB2016**) Hadapsar, **Pune**, On 9th and 10th February 2016)

National Conference

1. **Sachin Mukhamale¹** Studies on Cd and Zn Based Semiconducting material and Their Applications 23rd Raman Memorial Conference- **Feb. 2017**, University of Pune, Pune.
2. **Sachin Mukhamale¹** Synthesis and Characterization of ZnS thin films deposited by CBD and UCBD techniques; 22nd Raman Memorial Conference- **Feb. 2016**, University of Pune, Pune.
3. **Sachin Mukhamale¹** The effect of Ultrasonication on CdS thin films deposited by using chemical bath deposition (UCBD) and (CBD) Chemical bath deposition. in Emerging Trend in Physics (**ETP-2015**), Annatrao Pawar college (Arts, Commerce, Science, & Computer Science), Pirungut, Tal Mulshi, Dist Pune.

Workshop

1. **Sachin Mukhamale¹** One day workshop on Test and Measurement Solutions for Advanced Materials., organized by Centre for Sensor Studies, Department of Electronic Science, Savitribai Phule Pune University, Pune, **January 09th, 2016**
2. **Sachin Mukhamale¹** One day workshop on Revision on syllabus of second year MSc. Physics jointly organized by Department of Physics, Haribai Desai college, Pune and Board of College and University Development held on **3 rd march 2014.**
- 3.
4. **Sachin Mukhamale¹** Solar cell and Flash light by nonutilising material “DST-INSPIRE-CAMP, GOI, New Delhi, Best oral presentation & Best Demonstration (2011-12)

Award” Arts, Science and commerce college” Shri Dhokeshwar Mahavidyalaya, Ahamadnagar with LG- Mobile Science Lab, **2012**.

5. **Sachin Mukhamale¹** Solar cell and Flash light by nonutilising material “Dr. C.V. Raman Balvaidnyanik Workshop” Janseva Samajik, Sanskrutik, shaikshnik, Kala, and Krida Pratishthan, Rahuri Krishi vidyapith, Ahamadnagar, LG- Mobile Science Lab, 8th January **2012**.
6. **Sachin Mukhamale¹** Solar cell and Flash light by nonutilising material “DST-INSPIRE-CAMP, GOI, New Delhi, (2010-11) , Best oral presentation & Best Demonstration Award” at Department of Physics New Arts, Commerce and Science College, Shevgaon, Ahamadnagar with LG- Mobile Science Laboratory, **2010**.
7. **Sachin Mukhamale¹** Solar cell and Flash light by nonutilising material “DST-INSPIRE-CAMP, GOI, New Delhi, Best oral presentation & Best Demonstration (2011-12) Award” Arts, Science and Commerce College, Rajur, Ta.Akole, Dist.Ahamadnagar, with LG- Mobile Science Laboratory, **2010**.

Seminars

1. **Sachin Mukhamale¹** Energy mass equivalence relation “Best Research project Competition and Best oral presentation & Best Demonstration Award” Avishkar **2008**, University of Pune, Board of College & University Development.
2. **Sachin Mukhamale¹** “First Position in Mathematics Colligate Essay” **(2004-2005)** R.A. Arts, Shri M, K, Commerce, Sci College, Washim, **Department of Mathematics**.
3. **Sachin Mukhamale¹** “First Position in Mathematics Colligate Charts” **(2006-2007)** R.A. Arts, Shri M, K, Commerce, Sci College, Washim, **Department of Mathematics**.
4. **Sachin Mukhamale¹** “Second Position in Physics Colligate Seminars” **(2006-2007)** R.A. Arts, Shri M, K, Commerce, Sci College, Washim, **Department of Physics**.
5. **Sachin Mukhamale¹** “Participated in Physics Colligate debate” **(2006-2007)** R.A. Arts, Shri M, K, Commerce, Sci College, Washim, **Department of Physics**.
6. **Sachin Mukhamale¹** Energy mass equivalence relation “Best oral presentation” Science Club, **2007**. B.B. Arts, N.B. Commerce, B.P. Science College, Digras, Dist Yavatmal.

Special Courses:

1. Material Science, Department of Physics, University of Pune, **2012-13.**
2. Method experimental Physics, Department of Physics, University Of Pune, **2012-13.**
3. Problem solving in Physics, Department of Physics, University of Pune, **2012-13.**

Research Experience during Ph.D.:

“Studies on Cd and Zn Based semiconducting materials & their applications”

I have successfully re-established colloidal solution method, electrodeposition technique and Chemical bath deposition, UCBD, method, ZnS, CdS nanoparticles prepared by using colloidal solution method, Photoelectrode devices, CZTS thin films deposited electrochemical Method Nanoschottky diodes, and Photovoltaics & Bio-sensing application.

Research Experience during M.Phil.:

(I) Binary and ternary semiconducting thin films for solar applications

I have successfully re-established chemical bath deposition and ultrasonic chemical bath deposition technique, ZnS, CdS and ZnCdxS thin films deposited by chemical bath deposition technique, the effect of ultrasonication, annealing, varying deposition time of ZnS, CdS and ZnCdxS extensively studied by using different characterization technique.

(II) Synthesis of metal nanoparticles

The synthesis of PbS nanoparticle by using colloidal solution method.

Research Experience during M.Sc. :

“Helium dilution studies of hydrogenated amorphous silicon thin films deposited by hot wire chemical vapour deposition technique”

I have successfully re-established HW-CVD system in the laboratory. An attempt has been made to synthesize Si-H films using HW-CVD technique, I have successfully prepared nc-Si: H thin films and studied their electrical, optical and structural properties as a function of He dilution of silane. The nanocrystalline nature of Si thin films has been confirmed by using Raman scattering studies and low angle x-ray diffraction studies. It is observed that the deposition rate decreases with increase in He-dilution of silane studied. The photosensitivity was found to be decreases with increase He-dilution of Silane. The estimated values of bandgap are higher than the bandgap of pure bulk c-Si (1.1eV) but less than a-Si: H thin films (1.73eV) and that can be attributed with hydrogen content incorporated in the structure of Si: H thin films which is less than typical value of a-Si:H.

Reference

1] Prof. Shankar Ishwar Patil , Depat of Physics, SPPU Pune. Mo NO: 9762179148

And Pro-Vice Chancellor of Solapur University

Emailid: sipatil@yahoo.com, patil@physics.unipune.ac.in

2] former Prof. Vilas A. Tabhane, Dept of Physics, SPPU, Pune. Mo NO: 9975935358

Emailid:yash.goaldriven@gmail.com, vtabhane@physics.unipune.ac.in