

Dr. Ajinkya Bhagwan Bhorde

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Sr No	Description	Details
1	Name	Dr. Ajinkya Bhagwan Bhorde
2	Date of Birth	4 th May, 1993
3	Designation	Assistant Professor
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❖ Educational Qualifications:

Qualification	University	Class / Grade	College	Year
S.S.C	Pune	Distinction	New English School Padali	2008
H.S.C	Pune	Distinction	Dadapatil Rajale Arts, Science and Commerce college Adinathnagar	2010
B.Sc	SPPU	Distinction (Gold Medalist)	Shri Anand College Pathardi	2013
M.Sc.	SPPU	O (Gold Medalist)	Department of Physics. SPPU, Pune	2015
SET	SPPU	Pass	Department of Physics. SPPU, Pune	2016
M.Phil.	SPPU	A	Department of Physics. SPPU, Pune	2017
Ph.D.	SPPU	A	Department of Physics. SPPU, Pune	2022

❖ Title of the thesis:

“Synthesis of conducting electrodes and lead (Pb) free bismuth (Bi) perovskites for photovoltaic applications”

❖ **Teaching/ Industrial Experience:**

Duration	Designation	Institution	Experience
2016-2017	Technical Assistant	Regional Testing Center (RTC), School of Energy Studied, SPPU, PUNE.	One Year
2019-	Assistant Professor	Shri Anand College, Pathardi	Four Year

❖ **Fellowships /Awards**

1. **First Rank in B.Sc. (Physics)- 2013, SPPU, Pune**
2. **Second Rank in B.Sc. faculty -2013, SPPU, Pune**
3. **First Rank in M.Sc. (Physics)-2015, Department of Physics, SPPU, Pune**
4. **Prof. S .S. Joshi award by Department of Chemistry and Department of Physics, SPPU, Pune**
5. **M. V. Sathe prize -2013**
6. **The late vijayadevivasudeokhersmruti prize- 2013**
7. **Prof. D. G. Dhavale prize- 2013**
8. **Prof. G. R. Paranjape prize- 2013**
9. **Prof. G. R. Deshmukh prize-2013**
10. **Late Ganesh Nagesh Pathak prize- 2013**
11. **Best Paper Award: Engineered Science Publisher December, 2021**

❖ **Other Qualification**

- Qualify **State Eligibility Test (SET)** conducted by Savitribai Phule Pune University.
- **Department of Science and Technology (DST) INSPIRE FELLOW**

❖ **Induction program/ Orientation/ Refresher/Faculty Development Program / short Term Courses attended:**

- **Two week Refresher course in PHYSICS: 27 Oct. -10 Nov. 2021 (Grade: A+)**
- **One Week National Online Faculty Development Program ICT Tools for Effective Teaching Learning 11-16 May 2020**
- **Two Weeks Faculty Development Programme on “MANAGING ONLINE CLASSES and CO-CREATING MOOCS: 2.0” 18 May- 03 June 2020.**

- **Two Weeks Faculty Development Programme** on "ADVANCED CONCEPTS FOR DEVELOPING MOOCS" from July 02 - July 17, 2020
- **Short term course on Learning Physics Through Simple Experiments** conducted by Professor H. C. Verma & Team, IIT Kanpur
- **Faculty Induction Programme** for College Teachers at IISER Pune from 30th October - 23rd November, 2019
- **8th International Conference on Advancer Materials Development & Performance (AMDP-2017)**, July 11 to 15, 2017, PUNE, INDIA
- **International conference on Nanotechnology: Ideas, Innovations and Initiatives (ICN:3I-2017)**, December 06-08, 2017, Indian Institute of Technology (IIT), Roorkee, India
- **International Conference on Nanotechnology for Human Welfare (ICNHW-2018)**, 1st -3rd Feb 2018, H.V. Desai College, Pune, INDIA (Poster Presentation)
- **National Raman Memorial Conference**, 23rd -24th February, 2018 organized by the Department of Physics, University of Pune, India
- **State Level Conference on Recent Trends In Material Science**, 15th & 16th February 2016, Department of Physics, Shri Anand College, Pathardi, India

❖ **Resource Person:**

1. Guest lecture on "Career guidance & opportunities after B. Sc. And M. Sc. (Physics)", 6th December 2021.
2. Webinar on "Renewable Energy sources", 18 Feb.- 20 Feb 2021
3. National webinar on "Career Opportunities in Physics", 29th Jan. 2022
4. State level online workshop on joint CSIR-UGC-NET (JRF/LS) and SET", 3rd Sept. 2021
5. Guest lecture on "Research Methodology", Jijamata Arts, Commerce and Science College Bhede, Tal: Newasa Dist: Ahmednagar, 08th April 2023

❖ **Languages**

- **English** Proficient in oral, reading, and written form
- **Hindi** Proficient in oral, reading, and written form
- **Marathi** Native Speaker

❖ **Experimental Skills**

- Chemical Synthesis
- Photovoltaics
- Solvothermal
- Vacuum and spin coating depositions

❖ **Membership's bodies/Committees:**

- **Member- National Raman Memorial Conference**, 23rd -24th February, 2018 organized by the Department of Physics, University of Pune

❖ **Research Interests :**

- Structural, optical, electronic and field emission properties of nano-materials
- Perovskite solar cell and Photo-detector
- TCO material optimization by RF- Magnetron Sputtering
- Renewable energy sources
- Low cost solar cell materials
- Thin film solar cells

❖ **Patent:**

1. **“SMART VEST TO DETECT FLUID IN LUNGS” Design No: 102921, 346144, date: 12/07/2021**
2. **"Anti-Tremor Dissecting Scissors " Design No: 353922-001, date: 29/11/2021**

❖ **Research Publications:**

1. Role of Solvents in the Preparation of Methylammonium Bismuth Iodide (MBI) Perovskite Films for Self-Biased Photodetector Applications
Shruti Shah, *Ajinkya Bhorde*, Yogesh Hase, Rahul Aher, Vidya Doiphode, Ashish Waghmare, Ashvini Punde, Pratibha Shinde, Swati Rahane, Bharat R Bade, Habib M Pathan, Mohit Prasad, Mariya Aleksandrova, Shashikant P Patole, Sandesh R Jadkar
ACS Applied Electronic Materials, (2022) 4 2793-2804
2. Effect of Boron Doping on Structural, Optical, and Electrical Properties of Hydrogenated Nanocrystalline Silicon Thin Films Grown by the Catalytic Chemical Vapour Deposition
Bharat Gabhale, Haribhau Borate, *Ajinkya Bhorde*, P Subhash, Ashvini Punde, Yogesh Hase, Shruti Shah, Ashish Waghmare, Bharat Bade, Mohit Prasad, Avinash Rokade,
ES Materials & Manufacturing (2022)
3. Single-step Electrodeposition of CZTS Thin Film: Influence of Complexing Agent Concentration
Haribhau Borate, *Ajinkya Bhorde*, Bharat Gabhale, P Subhash, Mohit Prasad, Vidhika Sharma, Avinash Rokade, *ES Materials & Manufacturing* (2022), 17, 34-43
4. Effect of boron doping on structural, optical, and electrical properties of hydrogenated nanocrystalline silicon thin films grown by Cat-CVD method
Bharat Gabhale, Haribhau Borate, *Ajinkya Bhorde*, Subhash Pandharkar, Ashvini Punde, Yogesh Hase, Shruti Shah, Ashish Waghmare, Bharat Bade, Mohit Prasad, Avinash Rokade, *ES Materials & Manufacturing* (2022)
5. Amorphous-to-Nanocrystalline Transition in Silicon Thin Films by Hydrogen Diluted Silane Using PE-CVD Method

Ashok Jadhavar, Vidya Doiphode, *Ajinkya Bhorde*, Yogesh Hase, Pratibha Shinde, Ashvini Punde, Priti Vairale, Mohit Prasad, Sandesh Jadkar, *Recent Innovations in Chemical Engineering (2021) 14, 58-70*

6. Role of Deposition Pressure on Properties of Phosphorus Doped Hydrogenated Nano-Crystalline Silicon (nc-Si: H) Thin Films Prepared by the Cat-CVD Method

Bharat Gabhale, Ashish Waghmare, Subhash Pandharkar, *Ajinkya Bhorde*, Shruthi Nair, Priti Vairale, Vidya Doiphode, Pratibha Shinde, Ashvini Punde, Yogesh Hase, Nilesh Patil, Mohit Prasad, Sandesh Jadka, *Recent Innovations in Chemical Engineering (2021) 14,46-57*

7. Synthesis and Characterization of Various Doped TiO₂ Nanocrystals for Dye-Sensitized Solar Cells
Raghvendra S Dubey, Sandesh R Jadkar, *Ajinkya B Bhorde*, *ACS omega (2021) 6, 3470-3482*

8. Structural, Electronic, and Optical Properties of Lead-Free Halide Double Perovskite Rb₂AgBiI₆: A Combined Experimental and DFT Study

Ajinkya Bhorde, Ravindra Waykar, Sachin R Rondiya, Shruthi Nair, Ganesh Lonkar, Adinath Funde, Nelson Y Dzade, *ES Materials & Manufacturing (2021) 12, 43-52*

9. 2D alignment of zinc oxide@ ZIF8 nanocrystals for photoelectrochemical water splitting

Pratibha Shinde, Vidhika Sharma, *Ajinkya Bhorde*, Rahul Aher, Shruthi Nair, Vidya Doiphode, Vijaya Jadkar, Nilesh Patil, Sachin Rondiya, Mohit Prasad, Sandesh Jadkar, *New Journal of Chemistry (2021) 45, 3498-3507*

10. Soft annealing effect on the properties of sputter grown Cu₂ZnSnS₄ (CZTS) thin films for solar cell applications

Subhash Pandharkar, Ashvini Punde, Mamta Nasane, Vidya Doiphode, Pratibha Shinde, Priti Vairale, Yogesh Hase, *Ajinkya Bhorde*, Ashish Waghmare, Sachin Rondiya, Mohit Prasad, Sandesh Jadkar, *Materials Today: Proceedings (2021) 34, 690-696*

11. Synthesis and characterization of inorganic K₃Bi₂I₉ perovskite thin films for lead-free solution processed solar cells,

Shruthi Nair, *Ajinkya Bhorde*, Rupali Kulkarni, Bharat Bade, Ashvini Punde, Priti Vairale, Yogesh Hase, Ashish Waghmare, Ravindra Waykar, Mrinalini Deshpande, Mohit Prasad, Sandesh Jadkar, *Materials Today: Proceedings (2021) 34, 684-689*

12. Single-step Electrochemical Deposition of CZTS Thin Films with Enhanced Photoactivity

Haribhau Borate, *Ajinkya Bhorde*, Ashish Waghmare, Shruthi Nair, P Subhash, Ashvini Punde, Pratibha Shinde, Priti Vairale, Vijaya Jadkar, Ravindra Waykar, Sachin Rondiya, Yogesh Hase, Rahul Aher, Nilesh Patil, Mohit Prasad, *ES Materials & Manufacturing (2020) 11, 30-39*

13. Effect of phosphine gas conditions on structural, optical and electrical properties of Nc-Si: H films deposited by cat-CVD method

Bharat Gabhale, Haribhau Borate, P Subhash, *Ajinkya Bhorde*, Rahul Aher, Shruthi Nair, Priti Vairale, Ashvini Punde, Ashish Waghmare, VijayaJadkar, Vidya Doiphode, Yogesh Hase, Nilesh Patil, Sachin Rondiya, Pratibha Shinde, Mohit Prasad, *ES Materials & Manufacturing (2020) 10, 52-59*

14. Environmentally stable lead-free cesium bismuth iodide (Cs₃Bi₂I₉) perovskite: Synthesis to solar cell application
Ravindra Waykar, *AjinkyaBhorde*, Shruthi Nair, Subhash Pandharkar, Bharat Gabhale, Rahul Aher, Sachin Rondiya, Ashish Waghmare, Vidya Doiphode, Ashvini Punde, PritiVairale, Mohit Prasad, Sandesh Jadkar, *Journal of Physics and Chemistry of Solids* (2020) 146, 109608
15. (400)-Oriented indium tin oxide (ITO) thin films with high mobility and figure of merit prepared by RF-magnetron sputtering
Ajinkya Bhorde, Ravindra waykar, Shruthi Nair, Haribhau Borate, Subhash Pandharkar, Sandesh Jadkar *Thin solid films* (2020) 704, 137972
16. Highly stable and Pb-free bismuth-based perovskites for photodetector applications
Ajinkya Bhorde, Shruthi Nair, Haribhau Borate, Subhash Pandharkar, Rahul Aher, Ashvini Punde, Ashish Waghmare, Mohit Prasad, Sandesh Jadkar, *New Journal of Chemistry* 44, 11282-11290
17. Room temperature synthesis of transparent and conducting indium tin oxide films with high mobility and figure of merit by RF-magnetron sputtering
AjinkyaBhorde, Ashok Jadhavar, Ravindra waykar, Shruthi Nair, Haribhau Borate, Subhash Pandharkar, Sandesh Jadkar *Journal of Electronic Materials*, (2019) 48 , 7192-7202
18. Excellent Response and Recovery Time of Photo-Detectors Based on Nc-Si: H Films Grown by Using Hot Wire Method
Vijaya Jadkar, Amit Pawbake, Ashok Jadhavar, Ravindra Waykar, P Subhash, Ajinkya Bhorde, Rahul Aher, Shruthi Nair, Bharat Gabhale, Ashish Waghmare, Dhirsing Naik, Priti Vairale, Suresh Gosavi, *ES Materials & Manufacturing* (2019) 5, 57-64
19. Probing the effect of selenium substitution in kesterite-Cu₂ZnSnS₄ nanocrystals prepared by hot injection method
Subhash Pandharkar, Sachin Rondiya, *Ajinkya Bhorde*, Shruthi Nair, Rahul Aher, Priti Vairale, Ashish Waghmare, Dhirsing Naik, Ravindra Waykar, Yogesh Jadhav, Santosh Haram, Manoj Kumar Ghosalya, Chinnakonda Gopinath, Mohit Prasad, Sandesh Jadkar, *Journal of Materials Science: Materials in Electronics* (2019) 30 (15), 14781-14790
20. Hydrothermal synthesis of rGO–PbBi₂Se₄ composite and investigation of its structural, chemical and field emission properties
Rahul Aher, *Ajinkya Bhorde*, Priyanka Sharma, Shruthi Nair, Haribhau Borate, ..., Mahendra More, Sandesh Jadkar *Journal of Material Science: Materials in Electronics* (2019) 216 (11), 1900065
21. Field emission investigation of solvothermal synthesized and soaked rutile-TiO₂ nanostructures
Ajinkya Bhorde, Somnath Bhopale, Ravindra waykar, Shruthi Nair, Haribhau Borate, Subhash Pandharkar, Adinath Funde, Mahendra More, Sandesh Jadkar *Journal of Material Science: Materials in Electronics* (2019), 30 (5), 4920-4930
22. DC-Magnetron Sputtered Mo Back Contact for Chalcopyrite Thin Film Solar Cells
Haribhau Borate, Subhash Pandarkar, Ravindra Waykar, Ashok Jadhavar, Bharat Gabhale, Rahul

Aher, *Ajinkya Bhorde*, Shruthi Nair, PritiVairale, Sandesh Jadkar, *Journal of Nano-and Electronic Physics(2019),11 1-5*

23. High Band Gap Nanocrystalline Tungsten Carbide (nc-WC) Thin Films Grown by Hot Wire Chemical Vapor Deposition (HW-CVD) Method

Bharat Gabhale, Ashok Jadhavar, *Ajinkya Bhorde*, Shruthi Nair, Haribhau Borate, Ravindra Waykar, Rahul Aher, Priyanka Sharma, Amit Pawbake, Sandesh Jadkar, *Journal of nano- and electronic physics (2018), 10 1-8*

24. Hydrothermal synthesis of rGO–PbBi₂Se₄ composite and investigation of its structural, chemical and field emission properties

Rahul Aher, *Ajinkya Bhorde*, Priyanka Sharma, Shruthi Nair, Haribhau Borate, Subhash Pandharkar, Sachin Rondiya, Minakshi Chaudhary, Chinnakonda Gopinath, Sachin Suryawanshi, Mahendra More, Sandesh Jadkar *Journal of Materials Science: Materials in Electronics (2018) 29 (12), 10494-10503*

25. Solvothermal synthesis of tin sulfide (SnS) nanorods and investigation of its field emission properties

Ajinkya Bhorde, Amit Pawbake, Priyanka Sharma, Shruthi Nair, Adinath Funde, Prashant Bankar, Mahendra More, Sandesh Jadkar *Applied Physics A (2018) 124 (2), 1-8*

26. Optimization of DC-magnetron sputtered molybdenum (Mo) thin film electrodes for electrodeposited CZTS solar cells

Haribhau Borate, Avinash Rokade, P Subhash, Ravindra Waykar, Bharat Gabhale, *Ajinkya Bhorde*, Rahul Aher, Shruthi Nair, Priti Vairale, *ES Materials & Manufacturing(2018) 3 (2), 22-28*

27. Single Crystal, High Band Gap CdS Thin Films Grown by RF Magnetron Sputtering in Argon Atmosphere for Solar Cell Applications

Kulkarni Rupali, Pawbake Amit, Waykar Ravindra, Jadhavar Ashok, Borate Haribhau, Aher Rahul, *Bhorde Ajinkya*, Nair Shruthi, Sharma Priyanka, Jadkar Sandesh, *Journal of nano- and electronic physics (2018)*

28. Growth of hydrogenated nano-crystalline silicon (nc-Si: H) films by plasma enhanced chemical vapor deposition (PE-CVD)

Ashok Jadhavar, Amit Pawbake, RavindraWaykar, VijayaJadkar, Rupali Kulkarni, *Ajinkya Bhorde*, ... Habib Pathan, Sandesh Jadkar *Energy Procedia (2017) 110, 45-52*

29. Structural and optical properties of CdTe thin films deposited using RF magnetron sputtering

Rupali Kulkarni, Sachin Rondiya, Amit Pawbake, Ravindra Waykar, Ashok Jadhavar, Vijaya Jadkar, *Ajinkya Bhorde*, Abhijit Date, Habib Pathan, Sandesh Jadkar *Energy Procedia (2017)*

30. Influence of RF power on structural optical and electrical properties of hydrogenated nano-crystalline silicon (nc-Si: H) thin films deposited by PE-CVD

Ashok Jadhavar, Amit Pawbake, RavindraWaykar, Vaishali Waman, ..., Ajinkya Bhorde, Adinath

Funde, Dinkar Patil, Habib Pathan, Sandesh Jadkar *Journal of Material Science: Materials in Electronics (2016)*

31. Hot wire chemical vapor deposited multiphase silicon carbide (SiC) thin films at various filament temperatures

Amit Pawbake, Vaishali Waman, Ravindra Waykar, Ashok Jadhavar, *Ajinkya Bhorde*, Rupali Kulkarni, Adinath Funde, Jayesh ..., Ganesh Lonkar, Sandesh Jadkar

Journal of Material Science: Materials in Electronics (2016)

32. Synthesis of indium tin oxide (ITO) as a transparent conducting layer for solar cells by RF sputtering

Ashok Jadhavar, *Ajinkya Bhorde*, Vaishali Waman, Adinath Funde, Amit Pawbake, Ravindra Waykar, Dinkar Patil, Sandesh Jadkar *Int. J. Eng. Sci. (2015)*

Dr. Ajinkya Bhagwan Bhorde

Assistant Professor