

Shri Shivaji College of Arts, Commerce and Science, Akola

Department of Physics

Department of Physics was established in the year 1967 with under graduate course. Post-graduate course in Physics was started in 1993 on self finance basis affiliated to Sant Gadge Baba Amravati University, Amravati. There is flexibility for under graduate students to select various science subjects with Physics as a one of the subject. Department implements the syllabus for under graduate and CBCS pattern for post graduate course framed by Sant Gadge Baba Amravati University Amravati. The departments have adequate infrastructure with modern equipment's and a good core library consisting of about 250 titles and number of e-books. The department has got the broadband connectivity with ICT facility. Four minor research projects have been successfully completed from the department. Recognition of laboratory for the research work is in progress. There are number of meritorious under graduate and post graduate students and NET, SET, JAM examinations qualified students to the credit of the department. There number of research publications in Journals of national and international repute. The students of this department are well placed in the private as well as govt. sector. Two faculty members of the department have been nominated as member of Board of Studies in Physics of university and government autonomous institution. Faculty of our department working as member of editorial board of International research journal as well as reviewer of number of research journals and conference proceedings. The department is marching ahead for academic excellence under the dynamic leadership of Prof. R. V. Salodkar, Head of department.

❖ Courses Available:

Under Graduate Course	Post Graduate Course
B.Sc.	M. Sc. (Physics)[CBCS pattern]
(Department offers following subject Combinations)	(Department offers following subject Specialization)
1. Physics, Chemistry, Mathematics	1. Condensed Matter Physics
2. Physics, Electronics, Computer Science	
3. Physics, Mathematics, Computer Science	
4. Physics, Mathematics, Electronics	
5. Physics, Chemistry, Geology	

❖ Infrastructure:

Location: 2 nd Floor, SATPUDA Building, Total Build up area : 550.175 sq. meter				
Departmental area in sq. meter	Laboratories	UG –	PG -	Research -
		133.875	157.8125	20.25
	Space for Faculty Accommodation (Staff room) - 37.55			
	Departmental Store -20.25			
	Seminar Hall - 101.5			
	Class Rooms - 75.9375 (PG)			
Departmental Library – 3				

❖ Features of Department:

- Organized a one day National Conference on “Recent Advances in Physical and Mathematical Sciences” NCRAPMS-2020 on 18th January 2020 in collaboration with IQAC . R.V. Salodkar was the Organizing Secretary. Link- [NCRAPMS-2020](#)
- Physics Department is well equipped with under graduate and post graduate Laboratory.
- Ability to conduct preparation and characterization of nano-structured materials in Physics laboratory.
- PG students can present their project work in national and international conferences.
- Physics department do preparation of low cost instruments and experimental kits along with UG and PG students.
- Every year, Physics department prepare students for participation in various competition like Avishkar, Seminar, Poster and Project presentation etc.
- Department of Physics conduct program’s like Hiroshima Day, National Science Day every year to develop student’s awareness towards sustainability of the society.
- Department of Physics conducts induction program for newly admitted under graduate and post graduate students to make them aware about handling of measuring instruments useful for laboratory experiments.

❖ Name and Designation of Staff (All Teaching and Non- teaching):

• Teaching Staff:

Sr. No.	Name of Faculty	Qualification	Designation	Specialization	Teaching Experience
1	Mr. R. V. Salodkar	M. Sc.	Associate Professor	Solid State Physics & Acoustics	33 years
2	Dr. S. M. Palhade	M. Sc., Ph.D. NET, SET	Associate Professor	Digital Electronics & Solid State Physics	17 years
3	Dr. S. B. Sawarkar	M. Sc, B. Ed, M. Phil, Ph.D.	Professor	Digital Electronics & Solid State Physics	17 years
4	Dr. M. R. Belkhedkar	M. Sc., Ph.D., SET	Associate Professor	Digital Electronics & Solid State Physics	16 years
5	Dr. R. G. Korpe	M. Sc., M. Phil., Ph.D.	Assistant Professor	Digital Electronics & Solid State Physics	2.5 years
6	Dr. P. J. Thakre	M. Sc., Ph. D.	Assistant Professor	Condensed Matter Physics	2.5 years
7	Dr. J. V. Bhale	M. Sc., Ph. D.	Assistant Professor	Digital Electronics & Solid State Physics	2.5 years

• Non- Teaching Staff:

Sr. No.	Name	Designation
1	Mr. S. G. Gawali	Lab Attendant
2	Mr. V. R. Bhakare	Lab Attendant
3	Mr. S. G. Shelke	Lab Attendant(Temporary)

❖ **University Merit Students of Department (2016 -2021)**

Sr.No.	Name of Student	Achievement	Year
1	Ku. Ammara Saman Ayaz Ahmad Khan	2 nd Merit (UG)	2016
2	Ku. Sofiya Parveen	2 nd Merit (PG)	2016
3	Mr. Ashish Bore	3 rd Merit (PG)	2017
4	Mr. Farhan Ahmad	5 th Merit (PG)	2017
5	Ku. Dipali Ramesh Mapari	2 nd Merit (PG)	2018
6	Ku. Vaishnavi Nilkhan	2 nd Merit (UG)	2019
7	Ku. Sarah Khan Ayyub Khan	8 th Merit (UG)	2019
8	Ku. Shweta M. Sable	2 nd Merit (PG)	2019
9	Ku. Kalyani G. Shelar	4 th Merit (PG)	2019
10	Ku. Simran R. Harwani	5 th Merit (PG)	2020

❖ **Research Publications (2016 -2021)**

- M. R. Belkhedkar**, A. U. Ubale, “Physical properties of Fe doped Mn₃O₄ thin films synthesized by SILAR method and their antibacterial performance against E. coli.” Journal of Saudi Chemical Society 20 (2016) 553 - 560. (**Impact Factor: 2.523**)
- M. R. Belkhedkar**, A. U. Ubale, Y. S. Sakhare, Naushad Zubair, M. Musaddique, “Characterization and antibacterial activity of nanocrystalline Mn doped Fe₂O₃ thin films grown by successive ionic layer adsorption and reaction method” Journal of Arab Universities in Basic and Applied Sciences 21 (2016) 38-44. (**Impact Factor: SNIP- 0.546**)
- M. R. Belkhedkar**, A.U.Ubale, “Influence of film thickness and Fe doping on LPG sensing properties of Mn₃O₄ thin film grown by SILAR method”. AIP Conference Proceedings, 1953(1) (2018) pp. 030112.
- Farhan Ahmed, **M. R. Belkhedkar**, **R.V.Salodkar**, “Physical properties of nanostructured strontium oxide thin film grown by chemical bath deposition technique”, AIP Conference Proceedings, 1953(1) (2018) pp.030105.
- Ishaque Ahmad, **M.R.Belkhedkar**, **R.V.Salodkar**, A.U.Ubale, “Physical properties of nanostructured CeO₂ thin films grown by SILAR method,” AIP Conference Proceedings 1953 (1) (2018) pp. 030102.
- R.V.Salodkar**, **M.R.Belkhedkar**, S.D.Nemade, “Structural, electrical and optical properties of nanostructured ZrO₂ thin film deposited by SILAR method”, AIP Conference Proceedings 1953 (1) (2018), pp. 030137.
- A.S. Sawarkar and **S. B. Sawarkar**, “X- ray diffraction study of dragline silk of Nephila pilipes (Araneae: Araneidae)”, International Journal of Pure and Applied Research in Engineering and Technology (September 2017), Vol.6 (2), 66-69, (ISSN: 2319-507X, **Impact Factor**, 2016: **4.226**), UGC App. J. No. 45872.
- S. M. Palhade**, “Triangular Mircostrip Patch Antenna for 2100 MHz”, 635-639, Journal of Emerging Technologies and Innovative Research (JETIR), 2349-5162, 2019-20
- S.B.Sawarkar** and A.S. Sawarkar, Spider silk-an ancient material of the future”, International Journal of Pure and Applied Research in Engineering and Technology (September 2016), Vol.5 (2), 236-240, (ISSN:2319-507X, Impact Factor, 2016: 4.226), UGC App. J. No. 45872.
- S.B.Sawarkar** and A.S. Sawarkar, “Medicinal prospects for major ampullate silk of giant wood spider, Nephila Pilipes”, International Journal of Researches in Biosciences, Agriculture and Technology”(July 2017),Special issue (2),Vol.-V, 163-165(ISSN:2347-517X-Online **Impact Factor**, 2016: **5.060**), UGC App. J. No. 43906.

11. **M. R. Belkhedkar, R. V. Salodkar, K.D. Sarode, S. B. Sawarkar, A.U. Ubale**, “Structural and optical properties of nanostructured Zirconium di-sulphide thin film grown by SILAR method.”, *AJANTA VIII (I)* (2019) 159 – 163.
12. **M. R. Belkhedkar, R. V. Salodkar, C.C. Chaudhari, S. B. Sawarkar, A.U. Ubale**, “Structural and optical properties of Antimony Trioxide nanoparticles prepared by chemical precipitation method.”, *Research Journey SPL 110(I)* (2019) 21 - 24.
13. **M. R. Belkhedkar, Mohd. Razique, R. V. Salodkar, S. B. Sawarkar, A. U. Ubale**, “Structural and optical properties of nanostructured Manganese disulphide thin film grown by SILAR method”, *Aayushi International Interdisciplinary Research Journal, Spl.Vol. 66* (2020) pp. 189 -191.
14. **A. S. Sawarkar and S. B. Sawarkar**, “AFM study of egg sac silk fibers of the giant wood spider, *Nephila pilipes* (Araneae: Araneidae)”, *International Journal of Current Engineering and Scientific Research* (Jan. 2019), vol.6, Issue 1, 97-100 (ISSN Print: 2393-8374, Online: 2394-0697 , **Impact Factor: 6.263**)
15. **S. Sawarkar and S. B. Sawarkar**, “Orb web features of giant wood spider *Nephila pilipes*”, *Research Journey International E Research Journal* (Feb. 2019), Special issue vol. 110 (G)-Zoology, 145-149 (ISSN: 23487143 **Impact Factor: 6.261**), UGC App. J. No. 40705.
16. **S. M. Palhade**, “Massive Open Online Courses (MOOCs) for Enrichment of Teaching-Learning and Evaluation,” 47-52, *SCHOLARS IMPACT*, 2394-7632, 2017-18
17. **S. M. Palhade**, “Design and EC-FDTD Simulation of a Microstrip Patch Antenna for 1950 Mhz”,15-20, *RESEARCH JOURNEY*, 2348-7143, 2018-19
18. **S. M. Palhade**, “ICT For Enhancements and Enrichment of Teaching Learning and Evaluation,”113-115, *SCHOLARS IMPACT*, 2394-7632, 2018-19
19. **S. M. Palhade**, Design and Simulation of a Dipole Antenna for GSM Band”, 57-63, *Ajanta*, 2277- 5730, 2016-17
20. **S. M. Palhade**, “Axial Mode Helical Antenna Design and Simulation for 1500 MHz”, 51-57, *AJANTA*, 2277-5730, 2018-19
21. **R. N. Wankhade**, Low Temperature Stearic Acid Sol-Gel Synthesis of Nano Crystalline MgO. G. V. Korpe, N. S. Bajaj, V. S. Hingwe, *Review of Research / Recent Advances in Nano Technology*, 1, (2019) 3.
22. **R. G. Korpe** and S. K. Omanwar, VUV Properties of Eu³⁺- Doped Y₂O₃ Phosphor Prepared via Solution Combustion and Solid-State Diffusion Method. *Carbon Science and Technology*, 12/1(2020)01-07 ISSN 0974- 0546
23. **R. G. Korpe**, N.S. Bajaj, G. V. Korpe, S. K. Omanwar VUV Excited Luminescent Studies of CaF₂: Eu Tailored by Reducing Treatment to Eu²⁺ ion. Pg. No. 112-117 *Vidyabharati International Interdisciplinary Research Journal* (Special Issue – May 2020 ISSN 2319-4979.
24. **R. G. Korpe**, K. A. Koparkar, N.S. Bajaj, S. K. Omanwar, VUV Investigation of Blue Emitting MA12O19: Eu (M = Ca, Sr, Ba) Phosphors Synthesized by Combustion Method. Pg. No. 1-8 *Journal of Physics: Conference Series* 1644(2020)012056 ISSN 1742-6596. DOI:10.1088/1742-6596/1644/1/012056
25. **R. G. Korpe**, K. A. Koparkar, N. S. Bajaj, S. K. Omanwar, Novel Molten Salts Synthesis and Photoluminescence Properties of Eu Novel Molten Salts Synthesis and Photoluminescence Properties of Eu, *International Journal of Scientific Research in Science and Technology* Volume 8 – Issue 1 (2021) Pg. No.476-479 - Print ISSN: 2395-6011 Online DOI: 10.32628/IJSRST218100107
26. **K.A. Koparkar, R.G. Korpe, G. V. Korpe, S. K. Omanwar** Aldo-Keto Gel Synthesis and Photoluminescence Properties of YVO₄: Eu³⁺Microsphere , *International Journal of Scientific Research in Science and Technology* Volume 8 - Issue1 (2021) Pg. No.480-483 Published Print ISSN:2395-6011Online ISSN:2395-602X , DOI: 10.32628/IJSRST218100108
27. **R. G. Korpe**, N.S. Bajaj , G.V.Korpe , S. K. Omanwar , Effect of Synthesis Techniques on VUV Properties of Eu³⁺ Doped YVO₄ Phosphors: A comparative Study. *International Journal of Scientific Research in Science and Technology*, Volume 9, Issue 6, print ISSN:

28. **Jaishree Bhale** , Satish Shelke, Gitanjali Kale, F.H.Kurne Inamdar ,Pradeep Sharma, XAFS Study of Mixed Ligand Copper (II) Complex of Salicylic Acid, JETIR , Volume 6, Issue 4, April 2019.
29. **Jaishree Bhale**, Satish Shelke, Sangshetty Kalayne, Pradeep Sharma , XANES and EXAFS Studies of Copper(II) Complexes of 1,4-Dihydrquinoxaline-2,3-dione , JETIR, Volume 6, Issue 3, March 2019.
30. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, XANES Study of Copper (II) Complexes of p-toluidine, IJIR, Vol-3, Issue-5, 2017.
31. **Jaishree Bhale**, Pradeep Sharma, A.Mishra EXAFS Study of Copper (II) Complexes of Aeromatic Aldehydes, IJSRD, Vol. 5, Issue 02, 2017.
32. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, Extended Fine Structure of the X-ray K-Absorption Discontinuity in Some Copper(II) Mixed Ligand Complexes of Benzaldehyde, IJRST, Vol 3, Issue 12, May 2017.
33. **Jaishree Bhale**, Pradeep Sharma, A. Mishra, XAFS Study of Copper (II) Complexes of P Anisidine , IJRST, Vol 3, Issue 12, May 2017.
34. **Jaishree Bhale**, Pradeep Sharma & A. Mishra, EXAFS Study of Copper (II) Mixed Ligand Complexes of 8 – Hydroxyquinoline, IJIR, Vol-3, Issue-4, 2017.
35. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, XANES Study of Copper (II) Complexes of Aeromatic Amines, IJSRD, Vol. 5, Issue 02, 2017.
36. **Jaishree Bhale**, Pradeep Sharma, A. Mishra, Extended X-Ray, K-absorption Fine Structural Studies of Mixed Ligand Copper (II) Complexes of p-Chloro benzaldehyde, IJMPSR ,Vol. 3, Issue 2, 2016.
37. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, XAFS Study of Copper ((ii) Mixed-Ligand Complexes of 8-Hydroxyquinoline, IJESC, Vol 6, Issue 4, 2016.
38. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, S.Ninama, X-ray Spectral Study by EXAFS of Some Copper (II) Complexes using Synchrotron Radiation Source, IJCPS, Vol. 5, Issue 2, 2016.
39. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, X-Ray, K-Absorption Spectroscopic Studies of Mixed Ligand Copper (II) Complexes of Benzaldehyde, IJCPS , Vol. 5, No,-3,2016.
40. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, XANES Study of Copper(II) Mixed-Ligand Complexes of 8-Hydroxyquinoline, IJCPS ,Vol. 5, No-2,2016.
41. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, Extended Fine Structure of the X-Ray K-Absorption Discontinuity in Some Copper (II) Mixed Ligand Complexes , IJESC ,Vol 6, Issue 5, 2016.
42. V. Sikchi, J.B.Thakare, **P. J. Thakare**. “Ultrasonic study of molecular interaction in liquid mixture of Ethanol +Butyl amine +Butyric acid at different temperatures” Vidyabharti Interdisciplinary research Journal, Vol.5(2) (2016) pp.162-167. ISSN 2319-4979
43. **P. J. Thakare**, J. B. Thakare, N. G. Belsare “Study of Molecular Interactions through Free length and Internal Pressure of Ternary Liquid mixture of alcohol, formic acid and tri-ethyl amine, Vol.1 issue 5 International Journal of Trend in scientific, Research and development pp(701-705) ISSN2456-6470
44. J. B. Thakare, **P. J. Thakare**, ‘Acoustical Study of Ternary Liquid Mixtures of Benzene + rimetyhyl Amine +Acetic Acid And Benzene + Trietyhyl Amine +Acetic Acid At Different Temperatures” Aayushi International Interdisciplinary Research Journal Spl Issue. 25 pp. (33-37) ISSN 2349-638x Approved Sr.No.64259
