



Dr. Panjabrao
Alias Bhausaheb
Deshmukh
Founder President

Shri Shivaji Education Society, Amravati's

Shri Shivaji College of Arts, Commerce and Science, Akola

NAAC Re-Accredited with A grade with CGPA 3.24
UGC Status of 'College with potential for Excellence'

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.

Mission and Vision

- ❖ To impart quality education to poor and downtrodden masses.
- ❖ To inculcate basic education in physics among students.
- ❖ To teach students how physicists measure, describe and explain natural phenomena through scientific investigation and critical thinking.
- ❖ To promote physics to be an exciting and highly rewarding discipline in view of important connections to other sciences, engineering disciplines and societal goals.
- ❖ To engage in research and scholarly activity in the fields of Physics and to serve the university and region by providing intellectual and promotional support.
- ❖ To gain the ability to think critically and analytically.

❖ Courses Available:

Under Graduate Course B.Sc.

(Department offers following subject Combinations)

1. Physics, Chemistry, Mathematics
2. Physics, Electronics, Computer Science
3. Physics, Mathematics, Computer Science
4. Physics, Mathematics, Electronics
5. Physics, Chemistry, Geology

Post Graduate Course M. Sc. (Physics)[CBCS pattern]

(Department offers following subject Specializations)

1. Condensed Matter Physics
2. Electronics

❖ Infrastructure:

Location: 2nd Floor, SATPUDA Building, Total Build up area : 550.175 sq. meter

Departmental area in sq. meter	Laboratories	UG – 133.875	PG - 157.8125	Research - 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			

❖ Highlights:

- 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. P. J. Thakare	M. Sc., Ph. D.	Assistant Professor	Condensed Matter Physics	3 years
6	Dr. J. V. Bhale	M. Sc., Ph. D.	Assistant Professor	Digital Electronics & Solid State Physics	3 years
7	Dr. V. G. Thakare	M. Sc., Ph. D.	Assistant Professor	Condensed Matter Physics	3 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)

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

1. **M. R. Belkhedkar**, A. U. Ubale, “Physical properties of Fe doped Mn_3O_4 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**)
2. **M. R. Belkhedkar**, A. U. Ubale, Y. S. Sakhare, Naushad Zubair, M. Musaddique, “Characterization and antibacterial activity of nanocrystalline Mn doped Fe_2O_3 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**)
3. **M. R. Belkhedkar**, A.U.Ubale, “Influence of film thickness and Fe doping on LPG sensing properties of Mn_3O_4 thin film grown by SILAR method”. AIP Conference Proceedings, 1953(1) (2018) pp. 030112.
4. 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.
5. Ishaque Ahmad, **M.R.Belkhedkar**, **R.V.Salodkar**, A.U.Ubale, “Physical properties of nanostructured CeO_2 thin films grown by SILAR method,” AIP Conference Proceedings 1953 (1) (2018) pp. 030102.
6. **R.V.Salodkar**, **M.R.Belkhedkar**, S.D.Nemade, “Structural, electrical and optical properties of nanostructured ZrO_2 thin film deposited by SILAR method”, AIP Conference Proceedings 1953 (1) (2018), pp. 030137.

7. 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.
8. **S. M. Palhade**, "Triangular Microstrip Patch Antenna for 2100 MHz", 635-639, Journal of Emerging Technologies and Innovative Research (JETIR), 2349-5162, 2019-20
9. **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.
10. **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. **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.

22. **Jaishree Bhale**, Satish Shelke, Sangshetty Kalayne, Pradeep Sharma , XANES and EXAFS Studies of Copper(II) Complexes of 1,4-Dihydroquinoxaline-2,3-dione , JETIR, Volume 6, Issue 3, March 2019.
23. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, XANES Study of Copper (II) Complexes of p-toluidine, IJIR, Vol-3, Issue-5, 2017.
24. **Jaishree Bhale**, Pradeep Sharma, A.Mishra EXAFS Study of Copper (II) Complexes of Aromatic Aldehydes, IJSRD, Vol. 5, Issue 02, 2017.
25. **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, IJIRST, Vol 3, Issue 12, May 2017.
26. **Jaishree Bhale**, Pradeep Sharma, A. Mishra, XAFS Study of Copper (II) Complexes of P Anisidine , IJIRST, Vol 3, Issue 12, May 2017.
27. **Jaishree Bhale**, Pradeep Sharma & A. Mishra, EXAFS Study of Copper (II) Mixed Ligand Complexes of 8 – Hydroxyquinoline, IJIR, Vol-3, Issue-4, 2017.
28. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, XANES Study of Copper (II) Complexes of Aromatic Amines, IJSRD, Vol. 5, Issue 02, 2017.
29. **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.
30. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, XAFS Study of Copper ((II) Mixed-Ligand Complexes of 8-Hydroxyquinoline, IJESC, Vol 6, Issue 4, 2016.
31. **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.
32. **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.
33. **Jaishree Bhale**, Pradeep Sharma, A.Mishra, XANES Study of Copper(II) Mixed-Ligand Complexes of 8-Hydroxyquinoline, IJCPS ,Vol. 5, No-2,2016.
34. **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.
35. 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
36. **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
37. J. B. Thakare, **P. J. Thakare**, ‘Acoustical Study of Ternary Liquid Mixtures of Benzene + trimethyl Amine +Acetic Acid And Benzene + Triethyl Amine +Acetic Acid At Different Temperatures” Aayushi International Interdisciplinary Research Journal Spl Issue. 25 pp. (33-37) ISSN 2349-638x Approved Sr.No.64259.
