

Dr. Rajendrakumar Banshilal Ahirrao

Assistant Professor

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1. **Department** :Physics
2. **Qualification** :M.Sc.;M.Phil.:Ph.D.
3. **Designation** :Male
4. **Date of Appointment** :13/07/1998
5. **Teaching Experience (UG)** :26 Years
6. **Research Experience** :15Years
7. **Academic Qualification**
8. **Research Degrees:**

Degree	Research Title	Date of Award	University
M.Phil.	“synthesis and gas sensing properties of pure and modified Strontium Titanate (SrTiO ₃)”	8/7/2009	North Maharashtra University, Jalgaon
Ph.D.	“Studies on SrTiO ₃ thin films prepared by Spray pyrolysis Technique”	13/8/ 2019	North Maharashtra University, Jalgaon

9. Research Project :

SN	Title	Date of Sanction	Status	Amount Sanctioned	Funding Agency
1	“Synthesis and characterization of perovskite based thin films by spray pyrolysis technique for gas sensing application”	27/09/2023	Ongoing	1,20,000/-	Vice Chancellor Research Motivation Scheme (VCRMS) KBC North Maharashtra University, Jalgaon.

10. Research Guide:

SN	Name of university	From Year	No of Student Registered
1	Kavayitri Bahinabai Chaudhari North Maharashtra University Jalgaon	2022	01
2	Shri Jagdishprasad Jhabarmal Tibrewala University,Rajasthan.	2019	01

11. Field of specialization under the subject/ Discipline:

(a) Materials Science, (b) Thin films and Gas sensing (c) Photo sensing (d) Photoconductivity (e) Nanotechnology

12. Academic staff college orientation/Refresher/short term courses attended:

SN	Name of the course	Place	Year	Duration	Sponsoring Agency
1	Orientation	Dr. Babasaheb Ambedkar Marathwada University. Aurangabad,Maharashtra	2002	3 Weeks	UGC
2	Refresher Course	Himachal Pradesh University,Summer hill Shimla	2010	3 Weeks	UGC
3	Refresher Course	Special summer School in Quantum Mechanics, UGC-Academic College Kannur University, Kerala	2013	3 Weeks	UGC

4	Refresher Course	Refresher Course in Environmental Science-Academic College, Savitribai Phule Pune University,Pune & Z.B.Patil College Dhule-Maharashtra.	2014	3 Weeks	UGC
5	Short term course (FDP)	The Human Resource Development Centre, Savitribai Phule University, Pune, conducted by ASC college, Taloda.	2017	1 Weeks	UGC HRDC
6	FDP (online)	Managing online Classes and cocreating MOOC's (Online from Delhi)	2020	2 Weeks	MHRD Conducted by Ramanujan College University of Delhi.
7	Workshop (Online)	Comprehensive e-Learning to e-Training guide for Administrative Work	May2020	2 Weeks	MHRD Conducted by Ramanujan College University of Delhi.
8	Workshop (online)	International Workshop on Research Methodology (WORAM-2021)	2021	One Month	Eudixia Research Center India.ISO 9001:2015 Certified: IAF Accredited and Reg under MCA Govt of India)

13. Number of Students Registered/Guided for Ph.D.: 02

Sr.No.	Name of university under which the student is perusing Ph.D.	Title of the Research
1	Shri Jagdishprasad Jhabarmal Tibrewala University Junjunu, Chudela, Jhunjhunu, Rajasthan	“Gas Sensing Properties of Metal Doped TiO ₂ Thin Film Sensors Prepared by Spray Pyrolysis Technique”
2	Kavayitri Bahinabai Chaudhari North Maharashtra University Jalgaon	“Study of Pristine and Doped ZnO thin films Fabricated by Spray Pyrolysis Technique for Gas Sensing Application”

14. Research articles published in the Journals of international/National repute:

Sr.No.	Name of the Article	Name of the Journal	Year	ISSN	IF
1	Synthesis of SrTiO ₃ thin films by spray Pyrolysis technique	International Journal of Scientific Engineering and Applied Science (IJSEAS)	2015	2395-3470	2.3
2	Spray pyrolyzed Nanostructured Cu doped Strontium Titanate Thin Films for highly sensitive Chlorine gas sensor	International Journal of Innovative Research in Science, Engineering and Technology	2017	2347-6710	0.4
3	CuO-modified SrTiO ₃ thin film resistors for Carbon Monoxide sensing	LAP LABERT Academic Publishing, Germany	2016	978-3-3-330-04006-9	0.1
4	Structural and Optical properties of Spray Pyrolysed SrTiO ₃ Thin Films	SPEED Journal of Research in Electronics	2016		0.5
5	Cu-STO films as chlorine gas sensors	UGC sponsored, National Conference on Nanomaterials: applications and properties, Organized by: department of physics, arts, commerce and science college, Sonai.	2013	978-81-924820-3-3	----
6	Estimation of ground-state energy of particle in 1-D potential well-variation method	Educreator Research Journal (ERJ)	2015	2394-8450	0.8
7	Synthesis And Characterization Study	International Journal of Advanced	2021	2320-5407	7

	Of Hg _x Cr _{2-x} S ₄ Composite Thin Films Prepared By Chemical Bath Deposition Technique	Research (IJAR)			
8	Characterization of Preferentially Oriented TiO ₂ Thin Films Deposited By Spray Pyrolysis	JJTU Journal of Renewable Energy Exchange	2023	2321-1067	4.958

15. Research articles presented in Conferences/ Seminars/ workshops / symposium etc

Sr.No.	Whether International/ National/ Regional/State/ Local-University/College level	Oral/Poster	Number
1	International Conferences	Oral /Poster	7
2	National Conference/ Seminars/Workshops etc	Oral /Poster	25
3	Regional/State level	Oral/Poster	5
4	Local-University/College level	poster	4

16. Editorial /Review Work:

1. Appointed as **Guest editor** of special issue for Journal of Scientific Research.BHU,Varanashi.
2. **Reviewer of Journal Materials Today** :Proceeding,Paper entitle Theoretical study of Adsorption Mechanism of DNA Base Adenine on Cadmium Doped Graphene for Biosensor Applications.

17. Membership:

Sr.No.	Name of body	Duration
1	Indian Association of Physics Teachers (IAPT)	Since 2022

18. Number of Students Registered/Guided for Ph.D.: 02

Sr.No.	Name of university under which the student is perusing Ph.D.	Title of the Research
1	Shri Jagdishprasad Jhabarmal Tibrewala University Junjunu, Chudela, Jhunjhunu, Rajasthan	“Gas Sensing Properties of Metal Doped TiO ₂ Thin Film Sensors Prepared by Spray Pyrolysis Technique”
2	Kavayitri Bahinabai Chaudhari North Maharashtra University Jalgaon	“Study of Pristine and Doped ZnO thin films Fabricated by Spray Pyrolysis Technique for Gas Sensing Application”

19. Chapters /Articles in Book/Magazine :

1. “**Maze Kutambh Mazi Jababdari**” -Book ,“**plasma cell daan karanyach garaj**”-Article, ATHARVA PABLICATION,ISBN-978-81-953171-1-0,PP,68-81,
Dr.Rajendrakumar Banshilal Ahirrao, First Edition 23 June2021.
2. The Article in Periodical **Shrishtidnyan**, entitled “**Ashi Kahani Vishvautapatchi**”
With ISSN No.2456-2114. Janeuary-Februay 2023.
3. Decoding National Education Policy 20220: Implementation Adaptability and Challenges”A Critical Analysis of its Impact on Higher Education in Maharashtra ,An Imprint of Notion Press India. Singapore. Malaysia.April 2024. ISBN:9798894151946.

20. Books

S.N.	Title of the Book	Name of publisher	Year of	ISBN no.
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			publication	
1	A Text Book of PRACTICAL PHYSICS	Prashant Publication, Jalgaon.	2015	978-93-85021-94-7
2	A Text Book of PRACTICAL PHYSICS	Prashant Publication, Jalgaon	2016	978-93-85019-93-7
3	Electricity And Electrostatics (F.Y.B.Sc.)	Success publication ,Pune.	2019	978-93-88441-40-7
4.	Practical Course in Physics;S.Y.B.Sc.	NIRALI prakashan,Pune,	2020	978-93-89944-39-9
5	Mathematical Physics T.Y. B.Sc.	Prashant Publication Jalgaon.	2020	978-93-90483-14-3
6	Electricity and Magnetism (Reference Book)	Iterative International Publisher.Chikkamagluru,Karnataka.	2024	978-93-5747-994-3
7	Practical Physics	Prime publication, Jalgaon	2024	978-93-95605-33-5

21. Conference /Workshop Organized:

1. Workshop on- S.Y. B.Sc. Syllabus Revision, **Uttamrao Patil Arts and Science College, Dahiwel, Tal-Sakri, Dist-Dhule** ,14 January 2016.
2. Recent Trends in Agriculture and Rural Development in India (RTARDI), **Uttamrao Patil College of Arts and Science, Dahiwel, Tal-Sakri, Dist-Dhule**, 20 January 2018.
3. International Conference on Advances in Material Sciences, Applied Sciences and Engineering (**ICAMASE-2021**). **Uttamrao Patil College of Arts and Science, Dahiwel, Tal-Sakri, Dist-Dhule**, 10 September 2021.

22. Papers Presented in Conferences:

A. International

1. "Temperature and field dependence of Thermally Stimulated Discharge Current in polymer nanocomposites electrets"Ozar (Nashik) 23-24-Dec.2014.
2. "Spray pyrolyzed Nanostructured Cu doped Strontium Titanate Thin Films for highly sensitive Chlorine gas sensor" GCOE, Jalgaon 20- 21 January 2017.
3. "Photoconductivity study of spray pyrolyzed pure and Cu modified SrTiO₃ thin films"International Conference on Advancement in Nanoelectronics and Communication Technologies"17th-18th January 2020,Jaipur ,India.

B. National

1. "Spray pyrolyzed Nanostructured Cu doped Strontium Titanate Thin Films for highly sensitive Chlorine gas sensor" GCOE, Jalgaon 20- 21 January 2017.
2. "Photoconductivity study of spray pyrolyzed pure and Cu modified SrTiO₃ thin films"International Conference on Advancement in Nanoelectronics and Communication Technologies"17th-18th January 2020,Jaipur ,India.

23. AVISHKAR (Research Festival) Poster Presentations:

1. XRD and ED-XRF study of Indian modern, ancient and historic coins, KBC NMU Jalgaon,29-30-December-**2017**
2. Study of spray pyrolyzed SrTiO₃ and Cu doped SrTiO₃ thin films for Photoconductivity applications, R. C. Patel Arts, Commerce and Science College, Shirpur,26 December **2018**.
3. Synthesis of TiO₂ Nanocrystalline powder by chemical route, Z. B. Patil College, Dhule **2018**.

4. Study of spray pyrolyzed SrTiO₃ and Cu doped SrTiO₃ thin films for Photoconductivity applications, KBC MU, 2-3 January 2019..
5. **Design of A Novel Electrochemical Reactor** Participated in Avishkar Organised by Late S.D. Patil Arts and Commerce and Late M.D. Sisode Science College Shindkheda. Dist-Dhule on October 2022.
6. “Fuel saver Technique for household use” Instrument (Module) ; Late S.D. Patil Arts and Commerce and Late M.D. Sisode Science College Shindkheda. Dist-Dhule on October 2022.

24. Appointments by college level and KBC NMU:

Sr.No.	Name of	Position/Role	Period/Date
1	Examination Committee	Coordinator	2018-2023.
2	NAAC College Committee:	Chairman	2012
3	“Bal Vigyan Mela for Tribal Children” a event sponsored by KBCNMU, Jalgaon under Cillage based Area Development Program and Vigyan Prasar, New Delhi.	Organizing Committee member	2018
4	Subject Expert for walk in interview of CHB professors, in Sr.Colleges	Subject Expert	Various dates
5	Online Examinations conducted by KBCNMU	IT Coordinator	2020-2021
6	Local Management Committee (LIC)	Chairman	Various dates
	Local Management Committee (LIC)	Member	Various dates

25. MOU/ Collaboration:

The MoU is done for **Physics Aptitude Test (PAT)** quiz for F.Y./S.Y. B.Sc. Students, **Dept. of Physiscal Sciences, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon** and Dept. of Physics, NSS'S, Uttamrao Patil Arts science College, Dahiwel.

26. Award and Recognition:

Sr.No.	Description
1	Article: “Photoconductivity study of spray pyrolyzed pure and Cu-modified SrTiO ₃ thin films” - Received ASTRA award 2023 (Thiruchirappalli) Karnataka.
2	“Fabrication of a Novel Electrochemical Reactor” - Third Prize at the 37th Convention of Indian Association Of Physics Teachers (IAPT) - NCIEP 2023, Jaipur (8-10 Oct. 2023).

27. List of Publications: Citation:15

SN	Title of the paper	Name of the Journal	Year of publication	ISSN no.	Category of Journal	Impact Factor	Link/website of the journal	Link of article
1	Study of spray pyrolyzed SrTiO ₃ and Cu doped SrTiO ₃ thin films for Photoconductivity application	International Journal of Multidisciplinary Studies (IRJMS)	Oct-18	2454-8499	UGC approved /Scopus	1.3599	https://www.irjms.com/	https://bit.ly/4bHptWL
2	Photoconductivity Study of Spray Pyrolyzed STO Thin Films	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	01-04-2019	2321-9653	UGC care (45842)	6.887	https://bit.ly/45ZWexn	https://bit.ly/4eZCZbc

3	Synthesis and Characterization of Nanocrystalline Barium Strontium Titanate Powder by Mechano-Chemical Method	IOSR Journal of Applied Physics (IOSR-JAP)	Mar-19	2278-4861			https://bit.ly/461WVGo	https://bit.ly/3LI0yf9
4	Study of Physical Properties of Nanocrystalline NiO Thin Films Prepared by Spray Pyrolysis Technique	Journal of Nanoscience and Technology (JNST)	07-Feb-19	2455-09191	UGC approved	1.354	http://jacsdirectory.com/	https://bit.ly/3zP3LCU
5	Influence of Band Gap Energy and Substrate Temperature on Gas Sensing Properties of Cu-doped SrTiO ₃ Thin Films	IOSR Journal of Applied Physics (IOSR-JAP)	Mar-19	2278-4861	5010	Online	https://www.iosrjournals.org/index.html	https://bit.ly/3zA6D6A
6	Study of spray pyrolyzed SrTiO ₃ and Cu doped SrTiO ₃ thin films for Photoconductivity application	International Journal of Multidisciplinary Studies (IRJMS)	Oct-18	2454-8499	UGC approved /Scopus	1.3599	https://www.irjms.com/	https://bit.ly/4bHptWL
7	Dielectric Properties of Wheat Food Grain and its Frequency Dependence	An International Multidisciplinary Quarterly Research Journal AJANTA	Jan-19	2277-5730	40776	5.5	http://www.ajantaprakashan.com/	https://bit.ly/4cEylly
8	Hydrogen sulfide gas-sensing properties of pure and Cu modified SrTiO ₃ nanostructured thin films	SOUVENIR, Green Synthesis of Nanomaterials and Their Applications	12-Feb-19	978-93-87098-24-4	----			-
9	Photoconductivity study of spray pyrolyzed pure and Cu-modified SrTiO ₃ thin films.	Materials Today: Proceeding	22-Jun-20	2214-7853	Scopus	---	https://www.sciencedirect.com/journal/materials-today-proceedings	https://bit.ly/4cHLy9c
10	Coronavirus (COVID-19) General Information to Scientific Study : A review		May-20					https://bit.ly/3S819Jn
11	CuO-MODIFIED SrTiO ₃ THICK FILM RESISTORS FOR LPG SENSING	Mazedan International Research Academy	20-Jan-21	2582-9505			https://www.mazedan.com/	file:///C:/Users/PC/Desktop/MCRJ0201002(4-9).pdf
12	Thin film Deposition Methods: A Critical Review	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	Jun-21	2321-9653	UGC Appro.	7.429	https://www.ijraset.com/	https://bit.ly/4f1Vw6I
13	Studies on H ₂ S Gas Sensing Performance of Pure and Modified Strontium Titanate Thick Films	Journal of Scientific Research of the Banaras Hindu University	Sep-21	0447-9483	UGC Care listed	Five year impact		

14	Study of Photodegradation of Methylene Blue Using Nitrogen Doped Tio ₂ Nanoparticles	Journal of Scientific Research of the Banaras Hindu University	Sep-21	0447-9483	UGC Care listed	Five year impac		
15	Effect of pre-heating temperature on ZnO thin films prepared by ultrasonic atomization and pyrolysis technique	Journal of Scientific Research of the Banaras Hindu University	Sep-21	0447-9483	UGC Care listed	Five year impac		
16	RD and ED-XRF study of Indian; Modern,Ancient and Historic Coins	Journal of Scientific Research of the Banaras Hindu University	Sep-21	0447-9483	UGC Care listed	Five year impac		
17	Study of Thymyl Ethers as a Plant Growth Regulators Thermo Acoustic Studies of Mixed Surfactants	Journal of Scientific Research of the Banaras Hindu University	Sep-21	0447-9483	UGC Care listed	Five year impac		
18	(Brij-97 + DTAB) System in Presence of Various Additives	Journal of Scientific Research of the Banaras Hindu University	Sep-21	0447-9483	UGC Care listed			
19	Characterization of Preferentially Oriented Tio ₂ Thin Films Deposited By Spray Pyrolysis	JJTU Journal of Renewable Energy Exchange	2023	UGC Care listed		http://surl.li/lb-ufpg	10.58443/IJREX.11.9.2023.60-65	
20	Cu _{1-x} Sr _x TiO ₃ thin film resistors for Carbon Monoxide sensing	IJFANS International Journal of Food and Nutritional Sciences	2024	2022	UGC Care listed		http://surl.li/chjujl	
21	Synthesis And Characterization Study Of HGXCR2-X S4 Composite Thin Films Prepared By Chemical Bath Deposition Technique	International journal of renewable energy exchange	2024		UGC Care listed		http://dx.doi.org/10.21474/IJAR01/12762	
22	Ai Transforming Education: A Comprehensive Analysis Of Its Application In Implementing The National Education Policy 2020	International Journal of Advance and Innovative Research	2024		UGC Care listed			