


Biodata: Shubha Gokhale

	Name		SHUBHA GOKHALE
	Designation		PROFESSOR OF PHYSICS
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EDUCATIONAL QUALIFICATIONS			
Degree	Year	Institute/University	
Ph.D. (Physics)	1992	University of Pune	
LLM (IPR)	2005	Turin University, Italy	
CAREER PROFILE			
Teaching Experiences:			
<ul style="list-style-type: none"> • Department of Instrumentation Sciences, University of Pune (1993-94 and 1996-2000) • School of Sciences, IGNOU (2000- till date) 			
AREA OF INTEREST/SPECIALIZATION			
Physics: Material Science, Electronics, Surface Physics, Instrumentation; Intellectual Property Rights (IPR)			
ROLE AND RESPONSIBILITIES AT IGNOU			
Details of Course Coordination / Design/ Development/ Classroom Teaching		<u>B.Sc.</u> 1. Physics of Solids (PHE-13) 2. Electrical Circuits and Electronics (PHE-10) 3. Communication Physics (PHE-16) 4. Physics Laboratory -1 (BPHL-103) 5. Thermodynamics and Statistical Mechanics (BPHE-106) <u>BSCG</u> 6. Mechanics : Laboratory (BPHCL-132) 7. Electricity and Magnetism: Laboratory (BPHCL-134) 8. Thermal Physics and Statistical Mechanics (BPHCT-135) 9. Thermal Physics and Statistical Mechanics: Laboratory (BPCHL-136) 10. Waves and Optics (BPHCT-137) 11. Digital and Analog Circuits and Instrumentation (BPHE-143) 12. Digital and Analog Circuits and Instrumentation: Laboratory (BPHEL-144)	

<p><u>M.Sc. (Physics)</u></p> <p>13. Electronics (MPH-005)</p> <p>14. Electronics Laboratory (MPHL-010)</p> <p>15. Materials Science (MPHE-025)</p> <p>16. Nanoscience (MPHE-027)</p> <p><u>Ph.D. (Physics)</u></p> <p>17. Nanotechnology (RPHI-005)</p> <p>18. Research Methodology (RPH-001)</p> <p><u>CPLT</u></p> <p>19. Laboratory Techniques in Physics (CLT-104)</p> <p>20. Basic Experiments in Physics (CLTL-104)</p> <p><u>PGDIPR</u></p> <p>21. General Overview of Intellectual Property (MIP-001)</p> <p>22. Industrial Property: Patents, Designs, Plant Varieties (MIP-002)</p> <p>23. Industrial Property : Trademarks, Geographical Indications, Trade Secrets and Unfair Competition (MIP-003)</p> <p>24. Protection of Industrial Property at National Level (MIP-005)</p> <p>25. Contemporary Intellectual Property Issues (MIP-008)</p>				
RESEARCH ACTIVITIES				
Papers in Refereed/Peer reviewed Journals				
(1)	Publications in International Journals			28
(2)	Publications in National Journals			02
(3)	Papers in Conference Proceedings			01
(4)	Other Publications (Book Chapters)			02
CONFERENCES/SEMINARS/WORKSHOPS ORGANISED/PARTICIPATED				
A. Conferences/Seminars/Workshops organised				02
B. Conferences/Seminars/Workshops participated/ Attended				29
C. Paper Presented In Seminar / Conferences				08
RESEARCH PROJECTS				
Sponsoring Agency	Period	Grant	Project Title	P. I./ Co-Investigator(s)
IUAC, New Delhi	Aug.2009- July 2013	Rs. 2 Lacs	Investigations of Ion-beam irradiation effects core-shell magnetic nanoparticles	PI: Shubha Gokhale Co-PI: Subhalakshmi Lamba

HONOURS/AWARDS/DISTINCTIONS/FELLOWSHIPS

1. Second best research paper award received in 20th Convocation of IGNOU (2005)
2. DAAD Post Doctoral fellowship to conduct research in the field of Surface Science at Technical University, Munich, Germany (1994-96)
3. INSA fellowship under Scientific Exchange Programme to conduct research at the Fritz-Haber-Institut der Max-Planck-Gesellschaft during November 2002-January 2003.
4. S.S.Joshi award for Topping M.Sc. (Physics) in Pune University (1985)

LIST OF PUBLICATIONS IN REFEREED JOURNALS

INTERNATIONAL JOURNALS:

1. Structural, morphological and optical properties of gadolinium doped magnetite nanoparticles
Richa Jain, Vandna Luthra, Manju Arora and **Shubha Gokhale**
Advanced Science, Engineering and Medicine **11** (2019) 88–91
(ISSN:2164-6627 (print); EISSN: 2164-6635 (online))
2. Dysprosium doping induced correlated electrical and optical behaviour of magnetite
Richa Jain, Vandna Luthra and **Shubha Gokhale**
AIP Conference Proceedings **2136** (2019) 040002
(ISSN: 0094-243X (print) 1551-7616 (online)) (IMPACT FACTOR: **0.40**)
3. Infrared Spectroscopic Study of Magnetic Behavior of Dysprosium Doped Magnetite Nanoparticles
Richa Jain, Vandna Luthra, Manju Arora and **Shubha Gokhale**
Journal of Superconductivity and Novel Magnetism **32**(2019) 325–333
(ISSN: 1557-1939 (Print) , 1557-1947 (Online)) (IMPACT FACTOR: **1.130**)
4. Probing influence of rare earth ions (Er³⁺, Dy³⁺ and Gd³⁺) on structural, magnetic and optical properties of magnetite nanoparticles
Richa Jain, Vandna Luthra and **Shubha Gokhale**
Journal of Magnetism and Magnetic Materials **456** (2018) 179–185
(ISSN: 0304-8853) (IMPACT FACTOR: **2.683**)
5. Dysprosium doping induced shape and magnetic anisotropy of Fe_{3-x}Dy_xO₄ (x=0.01–0.1) nanoparticles,
Richa Jain, Vandna Luthra and **Shubha Gokhale**,
Journal of Magnetism and Magnetic Materials **414**(2016) 111–115
(ISSN: 0304-8853) (IMPACT FACTOR: **2.683**)
6. Modifying the morphology and magnetic properties of magnetic nanoparticles using swift heavy ion irradiation
Shubha Gokhale, S. Lamba, Neha Kumari, Bhupendra Singh, D.K. Avasthi and S.K. Kulkarni
Nuclear Inst. and Methods in Physics Research, **B 333** (2014) 64-68
(ISSN: 0168-583X) (IMPACT FACTOR: **1.210**)
7. A magnetic nano-composite soft polymeric membrane
Akanksha Singh, Mandar Shirolkar, Mukta V. Limaye, **Shubha Gokhale**, Chantal Khan-Malek and Sulabha K. Kulkarni
Microsystem Technologies **19** (2013) 409
(ISSN: 0946-7076 (Print) 1432-1858 (Online)) (IMPACT FACTOR: **1.513**)
8. Iron substitution in CdSe nanoparticles: Magnetic and optical properties
Shashi B. Singh, Mukta V. Limaye, Sadgopal K. Date, **Shubha Gokhale**, and Sulabha K. Kulkarni
Phys. Rev. **B 80** (2009) 235421
(ISSN: 2469-9950 (print)/2469-9969 (online)) (IMPACT FACTOR: **3.813**)
(Selected for the Virtual Journal of Nanoscale Science & Technology Vol 21, Issue 1, January 4, 2010)
9. Template-free ZnS nanorod synthesis by microwave irradiation
Mukta V. Limaye, **Shubha Gokhale**, S. A. Acharya and S. K. Kulkarni
Nanotechnology **19** (2008) 415602
(ISSN: Online ISSN: 1361-6528/ Print ISSN: 0957-4484) (IMPACT FACTOR: **3.399**)

10. Self-organization of Pb thin films on Cu(111) induced by quantum size effects
J. H. Dil, J.W. Kim, Shubha Gokhale, M. Tallarida and K. Horn
Physical Review **B 70** (2004) 045405
(ISSN: 2469-9950 (print)/2469-9969 (online)) (IMPACT FACTOR: **3.813**)
(Selected for the Virtual Journal of Nanoscale Science & Technology Vol 10, Issue 4, July 26, 2004)
11. Probing interface electronic structure with overlayer quantum well resonances: Al/Si (111)
L.Abelle, C.Rogero, P.Kratzer, **Shubha Gokhale** and K.Horn
Physical Review Letters **87** (2001) 156801-1
(ISSN: 0031-9007 (print)/1079-7114 (online)) (IMPACT FACTOR: **8.839**)
12. Quantum well states in ultrathin aluminium films on Si(111)
L. Abelle, C.Rogero, **Shubha Gokhale**, S. Kulkarni and K.Horn
Surface Science **482-485** (2001) 488
(ISSN: 0039-6028) (IMPACT FACTOR: **1.849**)
13. Silicon bonding for ultrahigh vacuum surface science studies
Shubha Gokhale, A. Fink, P.Trischberger, K. Eberle and W.Widdra
Journal of Vacuum Science Technology **A19** (2001) 706
(ISSN: 0734-2101) (IMPACT FACTOR: **1.833**)
(Selected for the Virtual Journal of Nanoscale Science & Technology Vol 3, Issue 13, March 26, 2001)
14. Surface morphology and electronic structure of Ge/Si(111) 7×7 system
A.Lobo, **Shubha Gokhale**, and S.Kulkarni
Applied Surface Science **173** (2001) 270
(ISSN: 0169-4332) (IMPACT FACTOR: **5.155**)
15. Temperature-dependent impedance anomaly, microwave GMR and exchange-coupling in thin Ni/Cu multilayerd films
B.K. Kuanr, **Shubha Gokhale**, M. Vedpathak, A.V. Kuanr and G. Nimtz
Journal of Physics D: Applied Physics **33** (2000) 34
(ISSN Online ISSN: 1361-6463/Print ISSN: 0022-3727) (IMPACT FACTOR: **2.829**)
16. Deposition and characterization of $Cd_xHg_{1-x}Te$ films electroplated from a non-aqueous bath
J.P. Nair, R. Jayakrishnan, N.B. Chaure, **Shubha Gokhale**, A.Lobo, S.K. Kulkarni and R.K. Pandey
Journal of Physics and Chemistry of Solids **60** (1999) 1693
(ISSN: 0022-3697) (IMPACT FACTOR: **2.752**)
17. Studies with Ni/Ti multilayer films using x-ray photoelectron spectroscopy and neutron reflectometry: Microscopic characterization of structure and chemical composition
M. Vedpathak, S.Basu, **Shubha Gokhale** and S.K.Kulkarni
Thin Solid Films **335** (1998) 13
(ISSN: 0040-6090) (IMPACT FACTOR: **1.888**)
18. Density functional investigations of the geometric and electronic structure of Ethylene adsorbed on Si(001)
U.Birkenheuer, U.Gutdeutsch, N. Rösch, A.Fink, **Shubha Gokhale**,
P.Trischberger, D.Menzel and W.Widdra
Journal of Chemical Physics **108** (1998) 9868
(ISSN: 0021-9606) (IMPACT FACTOR: **2.997**)
19. One-dimensional delocalized adsorbate Bloch states on a semiconductor surface $C_2H_4/Si(001)-(2 \times 1)$
W. Widdra, A. Fink, **Shubha Gokhale**, P. Trischberger, D. Menzel, U. Birkenheuer, U. Gutdeutsch and N. Rösch
Physics Review Letters **80** (1998) 4269
(ISSN: 0031-9007 (print)/1079-7114 (online)) (IMPACT FACTOR: **8.839**)

20. Electronic structure of benzene adsorbed on single domain Si(001)-(2X1) :
A combined experimental and theoretical study
Shubha Gokhale, P. Trischberger, D. Menzel, W. Widdra, H. Dröge,
H.-P. Steinrück, U. Birkenheuer, U. Gutdeutsch and N. Rösch
Journal of Chemical Physics **108** (1998) 5554
(ISSN: 0021-9606) (IMPACT FACTOR: **2.997**)

21. One dimensional xenon band structures on hydrogen modified and stepped
platinum surfaces.
P. Trischberger, H. Dröge, **Shubha Gokhale**, J.Henk, H.-P. Steinrück, W. Widdra and D. Menzel
Surface Science **377-379** (1997) 155
(ISSN: 0039-6028) (IMPACT FACTOR: **1.849**)

22. One dimensional band structure - rare gases on Pt(110) 1X 2
M.Weinelt, P. Trischberger, W.Widdra, K.Eberle, P.Zebisch, **Shubha Gokhale**, D. Menzel, J. Henk,
R.Feder, H. Dröge and H.-P. Steinrück
Physical Review **B 52** (1995) R-17048
(ISSN: 2469-9950 (print)/2469-9969 (online)) (IMPACT FACTOR: **3.813**)

23. Dielectric function and optical conductivity of TiO_x (0.8 < x < 1.3) determined
from electron energy loss spectroscopy
Shubha Gokhale, S. R. Barman and D.D. Sarma
Physical Review **B 52** (1995) 14526
(ISSN: 2469-9950 (print)/2469-9969 (online)) (IMPACT FACTOR: **3.813**)

24. Chemical reactivity and band off-set at CdS/Si interface
M.Kundu, S.Mahamuni, **Shubha Gokhale** and S.K.Kulkarni
Applied Surface Science **68** (1993) 95
(ISSN: 0169-4332) (IMPACT FACTOR: **5.155**)

25. X-ray photoelectron spectroscopy analysis of SS 304 samples treated with
argon glow discharge conditioning
S.Anjali, V.P.Salvi, S.V.Gogawale, S.K.Kulkarni and **Shubha Gokhale**
Vacuum **43** (1992) 1197
(ISSN: 0042-207X) (IMPACT FACTOR: **2.515**)

26. Chemical interaction at Tm/Si(111) interface
Shubha Gokhale, S. Mahamuni, K.Joshi, A.S. Nigavekar and S.K.Kulkarni
Surface Science **257** (1991) 157
(ISSN: 0039-6028) (IMPACT FACTOR: **1.849**)

27. Photoemission and x-ray diffraction study of Er/Si(111) interface
Shubha Gokhale, S.Mahamuni, S.V.Deshmukh, V.J.Rao, A.S.Nigavekar and S..K.Kulkarni
Surface Science **237** (1990) 127
(ISSN: 0039-6028) (IMPACT FACTOR: **1.849**)

28. XPS and XRD investigations of Dy/Si interface
Shubha Gokhale, N.Ahmed, S.Mahamuni, V.J.Rao, A.S,Nigavekar and S.K.Kulkarni
Surface Science **210** (1989) 85
(ISSN: 0039-6028) (IMPACT FACTOR: **1.849**)

NATIONAL JOURNALS

29. Design, development and fabrication of deformable mirror
S. Shinde, **Shubha Gokhale** and S. Phadke
Journal of Instrumentation Society of India **32** (2002) 213
(ISSN: 0970-9983)
30. Nanostructures bring quantum mechanics in reality
Shubha Gokhale
Physics Education **14** (1998) 389
(ISSN: 0970-5953)

CHAPERS IN BOOKS

1. Synthesis, Characterization and Investigations of Antimicrobial Properties of Silver Nanoparticles Via a Green Method Using Mulberry (Morus Alba L) Tree Leaves
R. Rubia, Yashika Remy, Namrata Rajeshwari, Indu Tucker Sidhwani, Kavita Vasdev, Mangala Joshi, **Shubha Gokhale** and Vandna Luthra
Chapter in the book: Nano Biomaterials, Edited by V. Rajendran, P. Prabu and K. E. Geckeler, (2013):
pages 149-154; (Bloomsbury Publishing Pvt Ltd., India), ISBN 10: 9382563377/ ISBN 13: 9789382563372
2. Synthesis and characterization of metallic multilayer films
S.K.Kulkarni, M.Vedpathak, A.S.Nigavekar, **Shubha Gokhale**, R.Krishnan, H.Lassari and M.Tessier
in the book “Advances in Physical Metallurgy” Ed. S.Banerjee and R.V.Ramanujan
(Golden Breach Publishers, Netherlands) (1996) 143, ISBN 2-88449-210-0