Resume

1.	Name	Lekha Nair
2.	Designation:	Professor
3.	Office Address:	Physics Department, Jamia Millia Islamia Jamia Nagar, New Delhi-110025
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6.	Date of Birth:	27/05/61
7.	Date of Joining Service J.M.I.:	11/09/98
8.	Field of Specialization:	Condensed Matter/Surface Physics/ Nanomaterials
9.	Teaching Experience:	27 Years
10.	Research Experience :	32 Years

11. Employment Profile

Job Title	Employer	From	To
Teaching Assistant	Physics Dept., Queens College of the City University of New York, U.S.A.	01/09/84	31/05/86
Graduate Research Assistant	Low Temperature Lab., Physics Dept., Rutgers University, New Jersey.	31/05/87	01/09/87
Graduate Teaching Assistant	Physics Dept., Rutgers University, N.J.	01/09/86	31/05/89
Graduate Research Assistant	Lab. for Surface Modification, Physics Dept., Rutgers University, N.J.	01/05/89	31/05/93
Part Time Graduate Teaching Assistant	Physics Dept., Rutgers University, N.J.	01/09/93	31/12/93
Lecturer (Adhoc)	Physics Dept. Jamia Millia Islamia, Delhi.	05/11/95	04/05/98

Environmental Scientist	Development Alternatives, Qutub Institutional Area, Delhi	01/07/98	01/09/98
Lecturer	Physics Dept., Jamia Millia Islamia.	11/09/98	11/09/2003
Senior Lecturer	Physics Dept., Jamia Millia Islamia	12/09/2003	11/09/2007
Reader	Physics Dept., Jamia Millia Islamia	12/09/2007	11/09/2010
Associate Professor	Physics Dept., Jamia Millia Islamia	12/09/2010	16/02/2015
Professor	Physics Dept., Jamia Millia Islamia	17/02/2015	present

12. Academic Qualifications :

Examination	Board / University	Year	Div/ Grade	Subjects
Ph.D. in Physics (Condensed Matter Physics)	Rutgers University, Piscataway, New Jersey, U.S.A.	1994	CGPA 2.86/4.0	Core: Quantum Mechanics, EM Theory, Statistical Mechanics Electives: Solid State Physics, Particle Physics, Many Body Theory, Physics of Surfaces I and II
Ph.D. Programme in Physics (Transferred to Rutgers, 1986)	Queens College of the City University of NewYork, U.S.A.	1984-1986	CGPA 2.8/4.0	Core: Classical Mechanics, Quantum Mechanics, EM Theory, Electives: Solid State Physics, Applied Math.
M. Sc. (Physics)	Indian Institute of Technology, Madras	1984	CGPA 6.3/10	Core: Classical Mechanics, Quantum Mechanics, EM Theory, Structure of Matter, Math. Physics Electives: Solid State Physics, Low Temperature Physics,Thin Films
B. Sc. (Physics)	Govt. College for Women, U. of Kerala,Trivandrum	1982	First (82%)	Physics (Main), Mathematics and Chemistry (Subsidiary)
PreDegree Exam., (Std XII)	All Saints' Coll., Univ. of Kerala, Trivandrum	1979	First (79%)	Physics, Chemistry, Biology
Sec. School Cert. (StdX)	Goa Board of Sec. & Higher Sec. Education.	1977	First (77%)	English, Hindi, French, Maths., Science, Social Studies

14. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To

15. Awards/Fellowships/Associateships, etc.

a) Teaching Assistantships at CUNY: 84-86
b) Graduate Teaching Assistantships at Rutgers: 86-89
c) Graduate Research Assistantships: Summer 1987 and 1989-1993

16. Details of Academic Work:

(i) Curriculum Development:

a) 1999-2005: Set up Teaching Laboratory:Modern Physics Laboratory, with experiments for M.Sc. Students, including computer interfacing of equipment and programming of low cost interface kit with open source software(Linux and Python).

List of experiments set up:

1. Charge to mass ratio of electron with Helmholtz coils.
2. Determination of Rydberg constant by Balmer Series spectrum of hydrogen.
3. Franck-Hertz experiment in atomic physics
4. Quantitative Measurement of Diffraction of Light with photodetector
5. Electron Diffraction
6. Determination of Planck's Constant by the photoelectric effect
7. Characteristics of a Fuel Cell
8. Acoustic Doppler Effect
6. Range of Alpha Particle in air
7. Range of beta particles in air
8. Absorption of beta radiation in various materials
9. Study of density dependence of the absorption of gamma radiation in materials
10. Interference and Diffraction of microwaves.
11. Various experiments with the PHOENIX interface kit- programming in Linux and interface of components with the PC through USB interface and open source software.

b) Developed courses as part of curriculum revision-Condensed Matter Physics I, Condensed Matter Physics II, Mechanics and Special Theory of Relativity, Structure of Matter, Elementary Spectroscopy, Characterisation of Materials, Atomic and Molecular Physics, Advanced Topics in Materials Science

(ii) Courses taught at Postgraduate and Undergraduate levels:

U.G.: Mechanics and Special Theory of Relativity, Electrodynamics, Thermal Physics, Structure of Matter, Elementary Spectroscopy Basic Electronics, Atomic and Molecular Physics.

P.G.: Classical Mechanics, Atomic and Molecular Physics, Condensed Matter Physics I, Condensed Matter Physics II, Growth and Imperfections of Materials, Advanced Topics in Materials Science

(iii) Projects guided at Postgraduate level: 18

(iv) Any other contribution(s): Organised Co-curricular Activities for Physics Students: a) Physics Quiz programme organised for B.Sc.(H) and M.Sc. Students of the department, as part of Physics Association activities b) Physics Lecture competition for UG and PG students organised as part of Physics Association c) Physics Film Club-organised viewing of Instructional and informative films on Physics. d) Student visits to IUAC National Lab for National Science Days. e) Faculty Placement Coordinator for the department: Career counselling for U.G., P.G. and PhD. students of the department, conducted interactive sessions with students on applications for universities overseas and organised seminars by alumni on careers for graduating students.

17. Details of Research Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Completed/Non-Completed

Ultra High Vacuum System	Part of COSIST grant of UGC to the Department of Physics	2002	2005	Purchases completed in 2005, installed in 2006
Gate Valve and Manipulator-parts for UHV system	Part of FIST grant to Department of Physics, from DST	2004	2007	Purchases completed in 2005, installed in 2006

18. Number of PhDs guided:

Name of the PhD Scholar	Title of PhD Thesis	Name of Co-Supervisor(s), if any	Date of joining	Date of Thesis Defence
Asha	Ion Beam Induced Nanostructuring of Surfaces	none	February, 2009	October 2014
Ajit Kumar	Ion beam induced fragmentation of Molecules	Dr. C.P. Safvan, Scientist, IUAC, New Delhi	February, 2009	February 2016
Amit Kumar Chauhan	Growth of Epitaxial Heterostructures on Single Crystal Silicon Surfaces	Dr. Govind, Scientist, NPL, and Dr. Asad Niazi, Dept. of Physics, Jamia Millia Islamia	September, 2010	December 2016
Apurva Gupta	Solution growth of organic nonlinear optical materials and irradiation effects	none	September, 2014	
Shikha Binwal	Investigation of plasma dynamics in magnetised capacitively coupled radio frequency discharge.	Dr. Shantanu Karkari, Institute for Plasma Research, Gandhinagar, Gujarat.	September, 2015	
Zara Aftab	Ion Beam Effects on Reactor Materials	none	September, 2015	
Raseel Rahman	Structural, Optical, Mechanical and Electrical Analyses of Technologically Important Nonlinear Optical Single Crystals.	none	September, 2015	

Nargis Ali	Molecular Dynamics Simulation of Energetic Ions in Thin Films.	Dr. Sumit Mookerjee, IUAC, Delhi	November, 2016	
Sai Raj Ali	Catalysis from nanostructured surfaces	none	September, 2017	
Deepak Chhimwal	Capacitive Pickup for charged particle detection	Dr. C.P. Safvan, Scientist, IUAC, New Delhi	December, 2017	

19. Invited Talks delivered:

Topic	Date	Name of Institutes
Ion induced synthesis of magnetic nanostructures: Cobalt on Si(100)	November, 2009	IUAC, New Delhi
Physics at Surfaces: A series of lectures to research scholars and scientists	November/ December 2008	IUAC, New Delhi
Nanostructures from Ion Beams:Creating from Damage	March 2013	School of Physical Sciences, JNU, Delhi
Knowledge from Damage: Ion beam effects on Solids and Molecules	February 2015	Cochin University of Science and Technology, Cochin.
A Brief Introduction to Surface Science	January 2018	Goa University, Bambolim.
Ion interactions with Materials and Molecules	August 2018	Institute for Plasma Research, Ahmedabad.

20. Membership of Learned/Scientific Societies

Type of Membership (Member/ Life Member Any other)	Organization	Membership No. with date
Member	ISAMP (Indian Society for Atomic and Molecular Physics	February, 2009

21. Academic Foreign Visits

Country	Year of Visit	Programme
U.S.A.	2004	ES04 “Workshop on Electronic Structure, 2004” held at Rutgers University, New Jersey. May 2004

U.S.A.	2004	“Workshop on Time-Dependent Density Functional Theory, held at St John's College”, Santa Fe, New Mexico, June 2004,
U.S.A.	2004	“ASME Nano Bootcamp” held by the Americal Society for Mechanical Engineers and Northwestern University at Chicago, Illinois, June 2004.
Italy	2000	'Summer School on Density Functional Theory methods for determination of Electronic Structure', held at the Abdus Salaam International Centre for Theoretical Physics, Trieste, Italy, May-June 2000.

22. Publications in Refereed Research Journals:

Author(s)	Title of Paper	Journal	Vol. (No.)	Pages	Year
R. A. Baragiola, L. Nair and T. E. Madey	“Symmetric versus asymmetric collisions in Ion Induced Auger Electron Emission from silicon surface”.	Nuclear Instrumentation Methods in Physics Research	B58	322	1991
T. E. Madey, H. S. Tao, L. Nair, U. Diebold, S. M. Shivaprasad, A. L. Johnson, A. Poradzisz, N. D. Shinn, J.A. Yarmoff, V. Chakarian and D. Shuh	Structure and kinetics of electron beam damage in a chemisorbed monolayer :PF3 on Ru (0001)	*Springer Series in Surface Science: Desorption Induced by Electronic Transitions, DIET IV*	31	182	1993
N. J. Sack, L. Nair and T. E. Madey	“Adsorption and angle resolved electron stimulated desorption of CCL4 on Ru(0001)”	Surface Science	310	63	1994
L. Nair, N. J. Sack, and T. E. Madey	“Electron Stimulated Desorption of Negative Ions from halogenated molecules on Ru(0001)”	Nuclear Instrumentation Methods in PhysicsResearch	B 101	79	1995
Praveen Kumar, Lekha Nair, Santanu Bera, B.R. Mehta and S.M. Shivaprasad	“Epitaxial SiC formation induced by medium energy ions on Si(111) at room temperature”	Applied Surface Science	255	6802	2009
Asha Attri, Lekha Nair	“High Density cobalt nanostructures from ion beam irradiation of thin films”	e-Journal of Surface Science and Nanotechnology.	11	99	2013
Asha Attri, Ajit Kumar, Shammi Verma, K. Asokan, Lekha Nair	Synthesis of cobalt nanoparticles on Si (100) by swift heavy ion irradiation”	Nanoscale Research Letters	8	433	2013

Asha Attri, K. Asokan and Lekha Nair	"Synthesis of Tin Nanoparticles by Swift Heavy Ion Irradiation of Films on Quartz Substrates"	Advanced Science Letters	20	1446	2014
Amit Kumar Singh Chauhan, Nirosh M. Eldose, Monu Mishra, Asad Niazi, Lekha Nair, Govind Gupta	"Evolution of kinetically controlled In-induced surface structure on Si(5 5 7) surface"	Applied Surface Science	314	586	2014
Ajit Kumar, J. Rajput, T. Sairam, M.R. Jana, Lekha Nair, C.P. Safvan	"Setup for measuring angular anisotropies in slow ion-molecule collisions"	International Journal of Mass Spectrometry	374	44	2014
Amit Kumar Singh Chauhan, Asad Niazi, Lekha Nair, Govind Gupta	"In-induced stable ordering of stepped Si (553) surface"	Applied Surface Science	337	145	2015
Ajit Kumar, T.Sairam, Jyoti Rajput, Lekha Nair and C. P. Safvan	"Angular distributions of multiply charged fragments from dissociation of Nitrogen molecules by Xe^{9+} impact"	Journal of Physics: Conference Series	**635**	32103	2015
Amit Kumar Singh Chauhan, Shibin Krishna T.C., Neha Aggarwal, Monu Mishra, Asad Niazi, Lekha Nair, Govind Gupta	"Triangular Si3N4 nano-scale pits on the stepped Si (553) surface by ion induced reaction"	Advanced Materials Letters	6(11)	941	2015
Asha Attri, Lekha Nair	'Swift heavy ion induced changes in magnetisation of cobalt thin films"	AIP Conference Proceedings	1728	020569	2016
S Binwal, JK Joshi, SK Karkari, PK Kaw, L Nair	"Passive inference of collision frequency in magnetized capacitive argon discharge"	Physics of Plasmas	25(3)	033506	2018
Shikha Binwal, J.K Joshi, S.K. Karkari, P. K. Kaw, L. Nair, H. Leggate and A. Somers, M. Turner	"Spatial temperature profile in a magnetised capacitively coupled discharge"	Walailak Journal of Science and Technology	16	4	2018