



**Shaheed Rajguru College of Applied Sciences for Women
University of Delhi
Faculty Profile**

Name	Dr. ALKA VOHRA KUARNR	
Designation	PROFESSOR	
Email	alka.vohra@rajguru.du.ac.in	
Degree	Institution	Year
B.Sc. (H) Physics	Miranda House, University of Delhi	1983
M.Sc. (Physics)	Dept. of Physics & Astrophysics, University of Delhi	1985
Ph.D.	University of Delhi	1994
POST DOCTORAL RESEARCH EXPERIENCE		
Post Doctoral Research at, II. Physikalisches Institut - Universität zu Köln, Köln, Germany, with Prof. G. Nimtz from January 1995 to September 1996 in the field of Spintronics.		
CAREER PROFILE		
Total Teaching Experience: 37 Years		
<u>July 1992 - till date (Permanent Faculty Position)</u> At present working as Professor, Physics Department, Shaheed Rajguru College of Applied Sciences for Women, University of Delhi <u>December 1989 – April 1992</u> Lecturer, Physics Department, Shaheed Rajguru College of Applied Sciences for Women, University of Delhi <u>December 1986 - April 1987</u> Guest Lecturer, Physics Department, Gargi College, University of Delhi		
Undergraduate Courses Taught		
- B.Sc. (H) Physics - B.Sc. (H) Electronics - B.Sc. (H) Instrumentation - B.Sc. (H) Food Technology		

Subjects Covered at Undergraduate Level

- Elements of Modern Physics
- Thermal Physics
- Electromagnetic Theory
- Applied Physics
- Electromagnetics.
- Introduction to Instrumentation
- Mechanics
- Optics

ACADEMIC AND ADMINISTRATIVE ROLES

As the first and senior most appointed faculty member of the Institute since 1989 undertook several critical tasks in the development of the college over the the past 37 years:

- **Teacher in charge of the Physics Department of the Institute since 1990.**

Being the first faculty member of the Dept. of Physics, undertook the critical task of setting up Physics laboratory for the college. Selected and purchased the right equipment and operationalized the laboratory. Created standard operating procedures for the equipment.

- **Acting Principal:**

Served as the Acting Principal from time to time and discharged the functions of the Principal in her absence.

- **Served as convener/ member of the following committees**
 - Secretary staff council of the college
 - Convener of the Admission Committee
 - Proctorial Board
 - Presiding Officer of Internal Complaint Committee
 - Member of IQAC
 - Member Academic Supervisory Committee
 - Conveners leave Grant Committee
 - Deputy Superintendent of Examinations
 - Convener Internal Assessment monitoring committee
 - Academic Development & Time-Table Committees
 - Bursar & Purchase Committee
 - Fee Concession Committee

Served other critical tasks of the college as member of screening and selection committee.
Presently serving as member of the Governing body of the college.

- **International Visits**

- Attended International Capacity Building Programme at University of Liverpool , United Kingdoms on -“Global Academic Engagement” organized by University of Delhi in collaboration with University of Liverpool and British Council from 10-19 November, 2024.

CULTURAL / EXTRA CURRICULAR /SOCIAL OUTREACH ACTIVITIES

Served as Cultural secretary of the college on several occasions
 Convener Swachh Bharat Abhiyan
 Convener Women Development Cell
 Convener e-waste society of the college

RESEARCH PROFILE

RESEARCH AREAS OF INTEREST / SPECIALIZATION

- LASER Induced Damage Studies
- NANOSTRUCTURES
- SPINTRONICS
- BIOLOGICAL APPLICATIONS OF NANOPARTICLES

RESEARCH PROJECTS / FELLOWSHIP

- Completed Innovation project titled “Synthesis and Characterization of magnetic nano particles for tumour treatment” sanctioned by University of Delhi in October 2015, completed in October 2016.
- Completed as Principal Investigator, Project sanctioned by University Grant Commission, UGC 15-3/99 (SR-1), 1999, titled “Characterization and optimization of semiconductor optical components for applications in high power pulsed 1.06 μm Lasers”.
- Awarded Senior Research Fellowship by Council of Scientific and Industrial Research (CSIR) in 1990.

RESEARCH PUBLICATION PROFILE IN INTERNATIONAL JOURNALS

1) Structural, Magnetic, and Optical Properties of Mn^{2+} Doping in ZnO Thin Films;
Surfaces; 4, 268–278 (2021).

2) High frequency study of core–shell reusable CoFe_2O_4 –ZnO nanospheres
Journal of Applied Physics 115 (17), 17B515 (2014)

3) High frequency study of core-shell and uncoated Fe_3O_4 nanoparticles
Journal of Applied Physics 111 (7), 07B542(2012)

4) Nickel Nano-Wires Filled Alumina Templates for Microwave Electronics;
IEEE Transactions on Magnetics; 45 (10), 4052-4055 (2009)

- 5) Microwave Magnetic Properties of NiFe Nanostrips
IEEE Transactions on Magnetism, 45 (10), 3550-3553 (2009)
- 6) Effect of temperature on the ferromagnetic-resonance field and line width of epitaxial Fe thin films.
IEEE Transactions on Magnetism, 45 (10), 4015-4018 (2009)
- 7) Microstrip-tunable band-pass filter using ferrite (nanoparticles) coupled lines...,
IEEE Transactions on Magnetism, 45 (10), 4226-4229 (2009)
- 8) Size dependent microwave properties of ferrite nanoparticles: Application to microwave devices,
Journal of Applied Physics; 105 (7), 07B522-07B522-3 (2009)
- 9) Gigahertz frequency tunable noise suppressor using nickel nanorod arrays and Permalloy films
Journal of Applied Physics 105 (7), 07A520 (2009).
- 10) Ultrathin magnetic multilayer films for low-field microwave notch filters
Journal of Vacuum Science & Technology; B 25 (6), 2603-2606 (2007);
- 11) Magnetization relaxation in sputtered thin Fe films: An FMR study
IEEE Transactions on Magnetism, 42 (10), 2930-2932 (2006)
- 12) Temperature-dependent impedance anomaly, microwave GMR and exchange-coupling in thin Ni/Cu multilayered films.
Journal of Physics D: Applied Physics; 33 (1), 34-40 (2000)
- 13) FMR studies on Fe/Cr/Fe trilayer ultrathin films; magneto-crystalline anisotropy and electromagnetic impedance
Journal of magnetism and magnetic materials; 165 (1), 275-279 (1997)
- 14) Swept-frequency FMR on Fe/Cr/Fe trilayer ultrathin films; microwave giant magnetoresistance
Physics Letters A 221 (3), 245-252 (1996)
- 15) Laser-induced damage in InSb at 1.06 μm wavelength—a comparative study with Ge, Si and GaAs
Optics & Laser Technology 28 (5), 345-353 (1996)
- 16) Laser induced damage in GaAs at 1.06 μm wavelength: surface effects
Optics & Laser Technology 28 (1), 25-34 (1996)
- 17) Effect of anisotropy and volume of pore on Spin-Wave linewidth
Physica Status Solidi (a) 153 (1), 191-202 (1996).

18) Surface effects on Laser-induced damage in Si.
J.Phys.D : Appl. Phys. 23,56-66, (1990)

PAPERS PRESENTED/AUTHORED IN CONFERENCES

(1) Non-reciprocal behavior in Permalloy nano-strips at microwave frequency
The 58th Annual Magnetism and Magnetic Materials (MMM) Conference, Denver, Colorado, USA;
11/2013

(2) Monolithic Microwave Nonlinear Phase Shifter,
The 58th Annual Magnetism and Magnetic Materials (MMM) Conference, Denver, Colorado, USA;
11/2013

(3) High frequency study of core–shell reusable CoFe₂O₄–ZnO nano-sized hollow spheres,
The 58th Annual Magnetism and Magnetic Materials (MMM) Conference; 11/2013,

(4) MICROWAVE PLANAR NON-LINEAR PHASE SHIFTER IN MICROSTRIP GEOMETRY,
2103 IEEE AP-S/URSI-USNC Symposium; 07/2013,

(5) High frequency study of ZnO coated and uncoated CoFe₂O₄ nanoparticles,
Conference on Frontiers in BioMagnetic Particles, Telluride, CO, USA; 06/2013,

(6) Permalloy (NiFe) nanometer square-antidot arrays: Dynamic modes and use as a monolithic microwave band-pass filter,
International Microwave Symposium - 2013; 06/2013,

(7) Non-reciprocal Electromagnetic wave propagation in Permalloy nano-strips,
The 12th Joint MMM/Intermag Conference; 01/2013,

(8) Magnetic Multilayer Films for Microwave Filter Application
Magnetics Conference, 2006. INTERMAG 2006. IEEE International, 434-434 (2006)

(9) Influence of layering of NiO/NiFe on exchange bias
Magnetics Conference, 2005. INTERMAG Asia 2005. Digests of the IEEE ...(2005),

(10) Magnetization relaxation in sputtered thin Fe films: evidence of spin-pumping effect
Magnetics Conference, 2005. INTERMAG Asia 2005. Digests of the IEEE ...(2005),

(11) Microwave Giant-Magneto-Resistance and Inter-layer exchange coupling in Ni/Cu Multilayer films on Si(111) (abstract).

E-MRS Spring Meeting-2000, Symposium F, 30 May – 2 June (2000), Strasbourg, France.

(12) Microwave Colossal Magneto-Resistance of La-Ca-MnO films (abstract),
E-MRS Spring Meeting-2000, Symposium F; June (2000), Strasbourg, France.

(13) Laser induced damage in GaAs substrate used in MIC/MMIC,
APMC '93. 1993 Asia-Pacific Microwave Conference Proceedings (Cat. No.93TH0566-0), p 18/44-7
vol.2, (1993)

OTHER ACADEMIC ACHIEVEMENTS /PROFESSIONAL RECOGNITION:

- Appointed as Member of the Faculty of Science, University of Delhi from 1997 to 2000 and 2016-2019.
- Member Organizing Committee Faculty Development Program on Recent Trends in Applied Science teaching July, 2017
- Member of organizing committee for National conference on Recent trends in Instrumentation and Electronics October, 2016
- Program Convener UGC and DBT sponsored National Para –teaching staff Skill Enhancement Workshop Dec , 2017
- Resources Person in UGC DBT & IEEE EDS, Delhi Chapter Sponsored National Workshop for Para teaching skill enhancement Dec, 2017.
- Appointed on several occasions as member of National Jury for DST sponsored program INSPIRE.
- Invited talks for ALL INDIA RADIO (Science Cell).