



# DESHBANDHU COLLEGE

(UNIVERSITY OF DELHI)

KALKAJI, NEW DELHI, DELHI 110019

A NAAC Grade B++ Accredited Institution

NIRF 2022 Rank 28 in Colleges Category

## Faculty Details Performa for College Website

**Dr. RUCHIKA JOSHI**



### PRESENT ADDRESS:

- : G-1301, III<sup>rd</sup> floor
- : CHITTARANJAN PARK
- : New Delhi-110019
- : INDIA

### CONTACTS:

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### OBJECTIVE:

*Desperately looking for an educational, competitive and learner's environment for the best of my presentation and capabilities for the recurring my thematic personality. This motivates me to represent my overall best in the field of science and education. I personally feel it will be a great privilege to work with dedication and intelligence in an organization aiming at mutual synergizing my goals with that of the organization.*

## **EDUCATIONAL QUALIFICATION:**

### **Academic**

- **Ph.D** from Delhi University under **Prof. R.M.Mehra.[2010]** {Thesis on-*“Development and characterization of doped ZnO films for transparent conducting window application”*}
- Visited Nagoya Institute of Technology **JAPAN** in order to join the-*“ Exchange program for fostering young researchers capable of reducing environmental risk in Asia by using nanomaterials”* under the **“JSPS”** exchange program for East Asian Young researchers. From **Dec 6, 2009 to Dec 20, 2009.**
- Selected for **JAPAN** scholarship program **“AIEJW”** From **25 August 2005 to 12 July 2006.**
- **“GATE”** qualified in Physics **2003**
- **M.Sc (physics)** with specialization in **Electronics** from **Hindu College** Delhi University [2003]
- **B.Sc (Hon.)** in **Electronics** from Sri **Aurobindo College** Delhi University [2001]

## **WORK EXPERIENCE:**

- Work as Assistant professor Adhoc **B.Sc Physics** in **“ Deshbandhu College”** Delhi University [11 January 2021 to Till date]
- Work as Assistant professor Adhoc **B.Sc Physics** in **“ Deshbandhu College”** Delhi University [23 July 2012 to 9 January 2020]
- Work as Assistant professor Adhoc **B.Sc Physics** in **“ Dayal SinghCollege”** Delhi University [ 24 April 2011 to 22 July 2012 ]
- Work as Assistant professor Adhoc **B.Sc Physics** in **“ Maiyetri college”** Delhi University [ 13 Jan 2011 to 23 April 2012]
- Work as a guest lecturer **B.Sc Physics** in **“ Shyam Lal College”** Delhi University

[24 July 2009 to 27 Feb 2010]

- Work as a guest lecturer **B.Sc (Hon.) Electronics** in “**Sri Aurobindo College**” Delhi University [22 July 2004 to 20 August 2005]

#### RESEARCH SKILLS

- Worked with **techniques/equipments**: Powder **X-ray** diffraction, **UV-Visible** spectrophotometer, Optical microscope, Single **crystal X-ray** and scanning electron micrographs, AFM, Hall measurement, Ellipsometric Spectrometer on corning (7059), Si (100) p type,  $\alpha$ -Sapphire substrate.

#### SUBJECT TAUGHT

##### B.Sc. :

Digital Electronics, Electronic Devices, Physics of Devices and Instruments (B.Sc. (H) Physics)

#### AWARDS/PRIZE/CERTIFICATE etc. WON

- Won **Best oral presentation** award titled “Influence of substrates on structural and optical properties of sol-gel deposited Sc-doped ZnO films”, **Ruchika Sharma**, Kiran Sehrawat and R. M. Mehra, presented at **National Conference on Recent Trends In Material Sciences, 10-11 Feb.2009 DAV College, Amritsar, India**
- Received **Best oral presentation** for the **National Conference on Semiconductor Materials and technology** titled as “**Effect of Annealing on the structural and Photoluminescence Properties of Sol-Gel derived ZnO:Sc Films on Sapphire**”, **Ruchika Sharma**, Kiran Sehrawat and R. M. Mehra, presented on **16-18 Oct. 2008, Haridwar, India.**
- Received **Best poster presentation** award titled as “**Characterization of highly transparent and conducting sol-gel derived Scandium doped ZnO films**” **Ruchika Sharma** and R. M. Mehra in **National Symposium on Semiconductor Materials and Recent technologies, 13-14 Oct. 2006, B.M.A.S Engineering College, Agra, India.**
- Visited Nagoya Institute of Technology **JAPAN** in order to join the-“ **Exchange program for fostering young researchers capable of reducing environmental**

**risk in Asia by using nanomaterials”** under the “**JSPS**” exchange program for East Asian Young researchers. From **Dec 6, 2009 to Dec 20, 2009**.

- Selected for **JAPAN** scholarship program “**AIEJW**” From **25 August 2005 to 12 July 2006**.
- Participated in various events like essay writing, vocabulary quiz, debates, painting etc. at school level.

### **DBT STAR PROJECT 2021**

Working as a part of DST sponsored project “**Investigations of highly conducting and transparent Sc doped ZnO films grown by the sol-gel process: A promising highly conducting material for Solar cell fabrications on three different substrates**”. (Minor project under DBT Star College Scheme, September 2019; Status: Ongoing)

### **LIST OF PUBLICATIONS:**

#### **Journals:**

1. Effect of film thickness on the structural, electrical and optical properties of sol-gel derived scandium doped zinc oxide films

**Journal of Electronics Information Technology Science and Management.**

**Paper id :JEITSM/1479 Page no.64-96 DOI:10.37896/JEISMV12.11/159**

**ISSN No: 0258-7982 JEITSM, Volume 12, Issue 11, Nov 2022**

**Ruchika (Sharma) Joshi<sup>1</sup>, R. M. Mehra<sup>2,\*</sup> and Ajay Kumar<sup>3</sup>**

2. Atmosphere influence on structural, optical and Electrical properties of scandium doped Zinc Oxide films by sol-gel route.

**Journal of Electronics Information Technology Science and Management.**

**Paper id :JEITSM/1478 Page no.51-53 DOI:10.37896/JEISMV12.11/156**

ISSN No: 0258-7982 JEITSM, Volume 12, Issue 11, Nov 2022

**Ruchika (Sharma) Joshi<sup>1</sup>** and R. M. Mehra<sup>2</sup>

3. Investigations of highly conducting and transparent Sc doped ZnO films grown by sol-gel process

**Material Science-Poland, 27 (2009) 225-237 ISSN 0137-1339**

**Ruchika Sharma**, P. K. Shishodia, Akihiro Wakahara and R. M. Mehra

4. Epitaxial growth of Sc-doped ZnO films on Si by sol-gel route

**Applied surface science 255 (2009) 5781-5788 ISSN 0169-4332**

**Ruchika Sharma**, Kiran Sehrawat, Akihiro Wakahara and R. M. Mehra

5. Epitaxial growth of highly transparent and conducting Sc-doped ZnO films on c-plane sapphire by sol-gel process without buffer

**Current Applied Physics 10 (2010) 164 -170 ISSN 1567-1739**

**Ruchika Sharma**, Kiran Sehrawat and R. M. Mehra

#### **FACULTY DEVELOPMENT PROGRAMME (FDP)**

- Attended Faculty Development Program 102 on "**Python: Essentials, Programming and Analytics**" **Ministry of Education, Govt. of India Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT) Series of National Online Faculty Development Programs (FDPs) / Refresher Course for capacity building towards NEP-2020 based Skill Enhancement Courses** Organised Guru Angad Dev Teaching Learning Centre S.G.T.B. Khalsa College, Delhi University, held on from **27th October to 03rd November 2022**.
- Attended **Online in Six Days Online Faculty Development Programme on IGNOU NEP-PDP: of Swayam Prabha Live sessions recognized by UGC as equivalent to UGC-HRD Programmes** Organised by NEP-PDP Team, IGNOU recognized by UGC as equivalent to UGC-HRD Programmes, held on **17 -22, Oct 2022**
- Attended **Five Days Online Faculty Development Programme** on "**Programming in Python**" Organised by **Kirori Mal College, University of Delhi in collaboration with Mizoram University under the aegis of Pandit Madan Mohan Malviya National Mission**

of Teachers and Training (PMMMNTT), Ministry of education and secured A grade, held on 6-10, Dec 2021.

- Attended **One-Week Online Faculty Development Programme on “Development and Delivery of MOOCs and E-Content”** jointly organized by **Central University of Haryana, Mahendergarh** under the aegis of **Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT) and IQAC, Deshbandhu College, University of Delhi, New Delhi** from **June 26 to July 1, 2020**.

## CONFERENCE ORGANIZATION AND PRESENTATION

- Attended and participated in **Online National conference on National Education Policy: Implementation, Challenges, Opportunities and Probable Outcomes (With special reference to University of Delhi)** held on 14, May 2022 Organised by **Deshbandhu College University of Delhi** In association with **ICSS**.
- Participated in **National Workshop/Seminar “Technical Terminology in Science Teaching”** held at **Deshbandhu College, University Of Delhi, between 26<sup>th</sup> -27<sup>th</sup> October 2017**; organized by **Department of Higher Education, Ministry of Human Resource Development, Govt Of India**.
- Attended & Presented Abstract titled **“E-Waste Management in Delhi”** during **National Workshop on Skill Development to Build a Clean India** organized by **Deshbandhu College, University of Delhi**, in collaboration with **CSR, Oil and Natural Gas Corporation Ltd. New Delhi**, on **7<sup>th</sup> -8<sup>th</sup> June 2018**.
- Participated in conducting a
  - a) Workshop on **“Vaccum Coating, Sputtering and Thin Film Deposition Techniques”** by **Dr. R.K.Garg**.held on **19 July 2022**.
  - b) Online Webinar on **“Internationa Lcture Series on Recent Advances in Physics”** Entitled **“Photovoltaic Technologies: History, Status and Opportunities”** held on **11 April 2022**.
  - c) Online Webinar on **“Internationa Lcture Series on Recent Advances in Physics”** Entitled **“Quantum entanglement at all distances”** held on **15 march 2022**.
  - d) Online Webinar on **“Internationa Lcture Series on Recent Advances in Physics”** Entitled **“Patterned Magnetic Thin Films”** held on **26 march 2022**.

- e) Online Webinar on “International Lecture Series on Recent Advances in Physics” Entitled **“Quantum entanglement at all distances”** held on 15 March 2022.
- e) Online Webinar on “International Lecture Series on Recent Advances in Physics” Entitled **“Quantum Spin Liquids: Novel Platforms for Emergent Quasiparticles”** held on 16 Feb 2022.
- f) Online Webinar on “International Lecture Series on Recent Advances in Physics” Entitled **“Not yet finished journey of Hall effect ”** held on 15 Feb 2022.
- g) Online Webinar on “International Lecture Series on Recent Advances in Physics” Entitled **“Reflections of Indian Knowledge System ; heritage, Culture, Society and science ”** held on 29 Oct 2021.
- h) Co-Coordinator in the Workshop on ‘ **Vacuum Coating , Sputtering and Thin Film Deposition Techniques** ‘ organized by **Department of Physics, Deshbandhu College, University of Delhi under the aegis of IQAC and DBT Star College Scheme** held on March 22, 2021.
- i) Participated in the online workshop on **“Challenges of Teaching Physics Laboratory Courses in online Mode”** Organized by Department of Physics under the aegis of IQAC, Kalindi College, in association of Department Of Physics and Astrophysics, University Of Delhi and The National Academy Of Sciences India (NASI) Delhi Chapter on 23-25 January, 2021.
- j) Participated in the online **Science Academies Virtual Lecture Workshop on “Elements of Quantum Information”** Organized by the Department of Physics, Christ Church College, Kanpur Sponsored by Indian Academy of Sciences, Bengaluru, Indian National Science Academy, New Delhi, on 12-14 March, 2021.

- k) Participated in the popular science lecture series on **“Charged particle accelerators: an introduction”** organized by **The Physical Science Society : “Spectra”, Deshbandhu College, University of Delhi** on 8th October, 2021.
- l) Participated in National Webinar entitled **“Teacher’s e-Kit: A Four Quadrant Approach for Development of OERs for Higher Education”** organized by **Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi under the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT) of Ministry of Education** on 09th September 2021.
- m) Participated in the popular science lecture series on **“Nano Materials-Impact, Challenges and Applications”** organized by **The Physical Science Society : “Spectra”, Deshbandhu College, University of Delhi** on 11th September, 2021.
- n) Participated in the Webinar titled **“Gaining Proficiency in Online Admission Procedures and Redressal of Student Grievances”** organized by the **Internal Quality Assurance Cell (IQAC), Janki Devi Memorial College** on 30th September, 2021
- o) Participated in the online One day National Webinar on **“Energy efficient innovation and applications”** Online Mode. **Organised by Department of Physics Maitreyi College University of Delhi** June 30, 2021.

#### **Organization of 2 days National Seminar**

Co-Coordinator of **National seminar on RECENT TRENDS IN CONTEMPORARY PHYSICS** Organized by **Department of Physics, Deshbandhu College, University Of Delhi** under the aegis of **IQAC and DBT Star College Scheme** held on 30-31 March, 2021.

#### **Organization of Inter National Conference**

- a) Participated in the online Two day International Conference on **Post pandemic education and employment challenges and opportunities** .,



**“SANGOSHTHI” organized by Ram Lal Aanand College, University of Delhi,**  
March 4-6, 2021.

b) Participated in the online **International Conference on Contemporary Physics, Organized by IQAC, Rajdhani College, University of Delhi, The new Paradigm Shift (ICCPSS)** held on February 27-28, 2021.

➤ **Member of Organising Committee of the International Conference on Physics, Society and Technology ICPST-2019, held on 17-19Jan, 2019, organised by Department of Physics, Deshbandhu College.**

➤ Influence of substrates on structural and optical properties of sol-gel deposited Sc-doped ZnO films **National Conference on Resent Trends In Material Sciences, 10-11 Feb.2009, DAV College, Amritsar, India**

➤ Effect of Annealing on the structural and Photoluminescence Properties of Sol-Gel derived ZnO:Sc Films on Sapphire **National Conference on Semiconductor Materials and technology, 16-18 oct. 2008, Haridwar, India**

➤ Characterization of highly transparent and conducting sol-gel derived Scandium doped ZnO films **National Symposium on Semiconductor Materials and Recent technologies,13-14 oct. 2006, B.M.A.S Engineering College, Agra, India**

➤ Investigations of highly conducting and transparent Sc doped ZnO films grown by sol- gel process Workshop on Zinc Oxide Materials and Devices (IJW-2006) december 18-20, 2006, **University of Delhi South Campus, New Delhi, India**

➤ Preparation and Characteristics of Sol-Gel Derived Scandium Doped Zinc Oxide Films **Proceedings of the international Conference on Physics of**

**Semiconductor Devices, 22-23 May 2005, Department of Electrical and  
Electronic Eng., Toyohashi University of Technology, Toyohashi, Japan.**

**Ruchika Sharma**, Akihiro Wakahara, Tatsuya Kawano and R. M. Mehra

- **Structural properties in Sol-Gel derived ZnO Films Proceedings of the National Conference on Materials and Their Applications, 11-12 Aug. 2005, Kurukshetra, India.**
- **Effect of film thickness on properties of sol-gel derived very low resistance and transparent Scandium doped Zinc oxide (ZnO Sc) film Workshop on Advanced Materials for future energy requirements (WAMFER -2012) November 18-20, 2012, University of Delhi, New Delhi, India.**
- **Preparation and Characteristics of Sol-Gel Derived Doped Zinc Oxide Films Proceedings of the international Conference on Light-Cone Physics Hadronics and Particle Physics, 10-15 Dec 2012 Delhi University, India**

**Ruchika Sharma**, Akihiro Wakahara, Tatsuya Kawano and R. M. Mehra

#### **OTHER ACTIVITES**

- **Participated in Antardhvani (University Annual Festival) in years 2013, 2014 & 2015**
- **Organised & Participated in One Day Global India Bio Trip Submit 2019 at National Institute of Immunology Aruna Asif Ali Marg, New Delhi Educational Trip “Vigan Samagam Natural Science Center” New Delhi in 2017**
- **Active Participation in Deshbandhu College Annual Festival “Sabrang” in years 2013, 2014, 2015, 2016, 2017, 2018 & 2019**
- **Active Participation in Physics Dept. Cultural Society Annual Festival “COHERENCE” in years 2013, 2014, 2015, 2017, 2018 & 2019.**
- **Member, Organizing Committee of INSPIRE Internship Programme in years 2012, 2013, 2014, & 2017 held at Deshbandhu College, Kalkaji**

## ADMINISTRATIVE ASSIGNMENTS OF THE COLLEGE

- **Member Organizing Committee** of the Department Seminar Society PHYSICA and its related activity.
- **Member of** College ERP Attendance and internal assessment Portal committee.
- **Member of** Physics Department Student admission Committee.
- **Member of** DUSU and College student Union Election
- **Participated in** Annual Sports Day as an organizing member and as a participant.
- **Assisting in** Paper Evaluation, Paper Setting and Paper Invigilation duties.

## PERSONAL DETAILS:

**Date of Birth** : 22 December, 1978.

**Gender** : Female.

**Marital status** : Married

**Nationality** : Indian.

**Languages Known** : English and Hindi

**Date:** November 8, 2022

**Sincerely**

**Place:** Delhi

**Dr. Ruchika joshi**