

# Mukta

Female, 23

E-mail: ils.muktasharma@gmail.com

Contact: +918168944841

muktasharma2912@gmail.com

EDUCATION QUALIFICATIONS			
M.Sc. Physics	Delhi Technological University (formerly DCE)	8.87/10	2020-22
B.Sc.(Hons.) Physics	Miranda House University of Delhi.	8.55/10	2017-20
Class XII	R.K.S.D.Sr.Sec. Public School, Kaithal, Haryana	96.4 %	2017
Class X	R.K.S.D.Sr.Sec. Public School, Kaithal, Haryana	95%	2015

## RESEARCH INTERESTS

- Thin films and Nanostructures deposition techniques, Carbon nanotubes, Surface Plasmon Resonance based Sensors, synthesis using CVD, Material Science, Semiconductor device modeling and simulation, Photonic Crystal Fiber, Optical Communication.

## PUBLICATION

- Research paper titled “Surface Plasmon Resonance Implemented Silver with Multiple-Hole Microstructure for wide-ranged Refractive Index Detection” published in **Materials Today Proceedings, April (2022)**.
- Research paper titled “Gold/ZnO Interface Based D- Shaped PCF Surface Plasmon Resonance Sensor with Micro-openings, analytic Designing, and Some Applications” accepted for publication in **Springer Proceedings in Materials, April (2022)**.
- Research paper titled “Designing and Analysis of Different Modes of Triboelectric Nanogenerator based Sensors for IOT” published in **IEEE Xplore, March 2023**.
- Research paper titled “Analogy of gold, silver, copper and aluminum based ultra-sensitive surface plasmon resonance photonic crystal fiber biosensors” published in **Materials today proceedings (Scopus indexed), March 2023**.
- Research paper titled “Monitoring and sensing of glucose molecule by micropillar coated electrochemical biosensor via  $\text{CuO}/[\text{Fe}(\text{CN})_6]^{3-}$  and its applications” published in **Materials today proceedings (Scopus indexed), March 2023**.

## GRADUATION DISSERTATION WORK ( August 2021-May 2022)

- Supervised by Dr. Vinod Singh , Professor, DTU, Delhi synthesizing Carbon Nanotubes Molybdenum oxide composite ( $\text{MoO}_2$ ) using single furnace **Thermal chemical vapor deposition technique (CVD)** by varying different parameters including temperature, the concentration of precursors, distance between precursors and reaction time and explored its applications in **hydrogen and ammonia gas sensing**.
- Surface Plasmon Resonance** investigated and analyzed using **COMSOL Multiphysics** and sensors based on **Plasmonic Crystal Fibers** following Surface Plasmon Resonance has been designed and the results have been compared for different materials.

## GRADUATE LEVEL COURSES

- Advanced Semiconductor Physics, Nanoscience and Technology, Space and Atmospheric science, Characterization Techniques, Solid State Physics, Advanced Quantum Mechanics, Electrodynamics, Mathematical Physics, Statistical Physics, Atomic and Molecular Physics, Nuclear and Particle Physics, Electronics, Classical Mechanics, Applied Optics.
- MOOC: **Astronomy: Exploring Time and Space**, Offered by the University of Arizona; **Crash course on Python**, Offered by Google.

#### UNDERGRADUATE LEVEL COURSES

- Classical Mechanics, Mathematical Physics, Waves and Optics, Electronics, Advanced Mathematical Physics, Quantum Mechanics, Nuclear Physics, Modern Physics, Analog electronics, Digital Electronics.

#### WORKSHOPS

- Organized and Attended a Workshop on “Getting started on **Arduino**”.
- Volunteer of the **Physics Society** of Miranda House, University of Delhi.
- Interactive session on “**THE BIG BANG- A JOURNEY TO COSMOS**” organized by D.S. Kothari Centre of Research, Miranda House, University of Delhi.

#### WORK EXPERIENCE

- Summer Internship in the experimental study of the implementation of Arduino UNO for segregation of different types of materials based on the capacitance of a capacitor when different materials act as a dielectric medium under the guidance of Dr. Monica Tomar, Associate Professor, Miranda House University of Delhi, University of Delhi at D.S. Kothari, Centre of Research, Miranda House, University of Delhi (Jun’18-Aug’18)
- Managed Network Expert Intern- Advanced Physics at **Chegg India Pvt. Ltd.** (September’2020-December’2020).
- Operation Intern (Subject Matter Expert) Physics at **UMRA Tech Solutions Private Limited** (Jan’21 -Jun’21).
- Subject Matter expert (Latex) at **Iprep Solutions Private Limited** (July’21-June’22). Developing Latex coded solutions at the website **Cerebry**.
- Subject Matter Expert (Advanced Physics) at **Innovalance Learning systems pvt. Ltd.** (July’22-present)

#### POSITION OF RESPONSIBILITY

- Student coordinator, One-day E-workshop on “**Orientation session for all students and faculties of Institute by Innovation Ambassador**” conducted by **Department of Applied Physics, Delhi Technological University** in collaboration with **Institute’s Innovation Council** and **DTU Innovation and Incubation Foundation**. ( Hosted the whole event and managed pre and post-event duties.)
- Student coordinator, Two-day workshop on “**Atomic energy: Peaceful use and job opportunities**” conducted by **HRDC- Delhi Technological University** in collaboration with **NPCIL** and **HBTU, Kanpur** .( Hosted the whole event and managed pre and post-event duties.)
- Student coordinator, Host, one-day webinar on “**National Education Day on Futuristic Roadmap for Technical HEIs through NEP2020**” conducted by **HRDC- Delhi Technological University**. (Hosted the whole event and managed pre and post-event duties.)
- Active member of **Robotics Society, Miranda House**.

#### SKILLS AND ACHIEVEMENTS

Academic Achievements	<ul style="list-style-type: none"><li>District Topper, 2017.</li><li>POSE Scholarship by Haryana Government.</li><li>IIT- JEE Mains qualified.</li></ul>
Software skills	Python, SQL, COMSOL Multiphysics, Gaussian View, Origin Pro, MountainR, ImageJ, Gatan Microscopy Suite Software, SOLIDWORKS, Multisim, Blender 3D, Adobe Photoshop, Arduino UNO, Qubit.
Tools	MATLAB, LaTeX, Ms Office, MS-Excel, Powerpoint, Mathtype