

Curriculum Vitae



Jagriti Tyagi

M.Sc. Physics
Current Status: Ph.D

Contact Numbers:

+91-7060495705, 8057244346

E-mail:

Jagritityagi108@gmail.com

Personal Details:

Date of Birth: 29.08.1994

Gender: Female

Father's Name: Ashok Kumar Tyagi

Marital Status: Single

Mother Tongue: Hindi

Nationality: Indian

Languages Known:

✓ English

✓ Hindi

Address for communication:

Present residential address:

S-108, Shivalik Nagar, B.H.E.L.,
Haridwar, Uttarakhand- 249403
(INDIA)

Working Place: Department of
Physics, Gurukul Kangri University,
Haridwar 249404 Uttarakhand
(INDIA).

Interests and Hobbies:

✓ Social Services.

✓ Reading Books.

✓ Physics.

Music and Athletics.

Area of Interest:

✓ Metal oxide semiconductors

✓ Heterojunctions.

✓ Solar cell

Objective

To seek a challenging career in educational, research area and academic chronicle.

Academic Chronicle

- ❖ **Pursuing Ph.D.** in Physics from GKV, Haridwar under the supervision of Dr. Himanshu Gupta since 01 Sept. 2016.
- ❖ **M.Sc.** in Physics, Gurukula Kangri Vishwavidyalaya, Haridwar in 2016.
- ❖ **B.Sc.** (Physics, Mathematics, and Chemistry) from Chinmaya Degree College, Haridwar in 2014 affiliated from H.N.B. Garhwal University.
- ❖ **12th** from (C.B.S.E. Board) in 2011.
- ❖ **10th** from (C.B.S.E. Board) in 2009.

Certifications and Awards

- ❖ M.Sc. Dissertation on “**Electromagnetic Braking System**” at **G.K.V. Haridwar, India.**
- ❖ Life time member of The Indian National Science Congress Association (**ISCA**).

International conference

1. The international conference on Recent Advances in Fundamental and applied Sciences, Nov. 2019, Lovely Professional University, Punjab.

National conference

1. XXXII Annual Convention 2017 and National Symposium on Recent Trends in Physics at Different Scales, Haridwar, Oct. 2017. (**Got Second Prize**)
2. National Conference on Nanoscience and Instrumentation Technology, organised by National Institute Technology, Kurukshetra, March 2018.

Teaching Experience

Institute: Gurukula Kangri University, Haridwar, Uttarakhand

Profile: Taught UG and PG classes as Research scholar.

Taught UG and PG classes at Chinmaya Degree College, Haridwar

Publications (SCI Index Journals)

Published work

1. **J. Tyagi**, H. Gupta, L.P. Purohit, Cascade Structured ZnO/TiO₂/CdS quantum dot sensitized solar cell, **Solid State Sciences** 102 (2020) 106176. <https://doi.org/10.1016/j.solidstatesciences.2020.106176> (**I.F. 3.059**)
2. **J. Tyagi**, H. Gupta, L.P. Purohit., Mesoporous ZnO/TiO₂ photoanodes for quantum dot sensitized solar cell, **Optical Materials**, 115 (2021), 111014. <https://doi.org/10.1016/j.optmat.2021.111014> (**I.F. 3.08**)
3. **J. Tyagi**, H. Gupta, L.P. Purohit, Ternary alloyed CdS_{1-x}Se_x quantum dots on TiO₂/ZnS electrodes for quantum dots-sensitized solar cells, **Journal of Alloys and Compounds**, 880 (2021) 160480. <https://doi.org/10.1016/j.matchemphys.2020.123191>. (**I.F. 5.316**)

Technical Skill

Basic Computer, MS. Office, Excel, Power Point. **Software:** Origin lab, ImageJ

Operating and Handling: Sol-gel process, Spin Coating, RF/DC-Sputtering, Dip-coating, SILAR technique, Doctor-blade Method, Semiconductor Characterization System (Keithley-4200), UV-Vis-NIR Spectrophotometer (Shimadzu, Japan), Solar Simulator.

➤ Work done during Ph. D.

The work emphasizes on ZnO/TiO₂/CdS and ternary alloyed TiO₂/ZnS/CdS_{1-x}Se_x/ZnS quantum dots synthesized by sol-gel method i.e., SILAR technique for solar cell application. After, optimizing the study also highlights the potential of this novel sensitizer material, and introduces a fresh perspective and valuable reference for researchers interested in enhancing the photovoltaic performance of QDSSCs. Highest efficiency of ZnO/TiO₂/CdS QDSSC calculated was 2.44% at 0.1M concentration and the lowest 0.52% at 0.8M concentration. Ternary CdS_{1-x}Se_x quantum dots on TiO₂/ZnS photoanodes has not been represented so far and our prototype device shows highest efficiency (5.12%) in comparison to already reported. In this way, the prepared solar cell samples were characterized by X-ray diffraction (XRD), field emission electron microscopy (FE-SEM), and UV-Vis spectrophotometer for structural, texture with surface morphology, and optical properties, respectively. Photocurrent-voltage (J-V) measurements of the fabricated solar cell device were analyzed by solar simulator (Model #SS100AAA with class AAA) under illumination with xenon short arc lamp (AM 1.5G spectrum), having light intensity of 100 mWcm⁻².

✚ **Ph.D. thesis has been submitted by 05 July 2021 and final defend is expected by 20 Dec. 2021.**

Declaration

I, hereby declare that all the information provided above is true to the best of my knowledge and belief.

Date: 05-05-2022

Place: Department of Physics,
Chinmaya Degree College,
Haridwar (INDIA).

Dr. Jagriti Tyagi