# Ashi Ikram

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**Citations- 430** **h-index- 10** **i-10 index- 10**

Currently, working as guest faculty at Department of Science & Humanities, Jamia Millia Islamia, New Delhi

## EDUCATIONAL QUALIFICATIONS:

NET-JRF in Physical Sciences (2012)
Ph.D. (Physics) from Dayalbagh Educational Institute, Agra, India (2018)
9.53 CGPA secured in M.Phil. (Physics Specl. Electronics) from Dayalbagh Educational Institute, Agra, India (2011)
8.72 CGPA secured in M.Sc. (Physics Specl. Electronics) from Dayalbagh Educational Institute, Agra, India (2011)
83.1% secured in B. Sc. Hons. (Physics) from Dayalbagh Educational Institute, Agra (2009)

### Ph.D. Details:

- Thesis Title: Metal Oxides Modified with Quantum Dots for Solar Generation of Hydrogen (2012-2018)
  (Supervisor: Prof. Vibha R. Satsangi, Deptt. of Physics & Comp. Sci., Dayalbagh Educational Institute, Agra)

### ABROAD VISIT:

- Delivered talk on "Quantum Dots Sensitized Hematite Thin Films with Enhanced Photo Response" at University of Maryland (UMD), MD, USA in front of Prof. Sheryl H. Ehrman & her research group (08/12/14).
- Delivered talk on "Solar assisted PEC generation of hydrogen: Recent Trends at Arizona State University (ASU), Phoenix, USA in front of Prof. A.M. Kannan & his research group (28/11/14).

### Research Experience:

July '20- Jun '23 **DS Kothari Postdoctoral Fellow @ Jamia Millia Islamia, New Delhi, India**

Title- Incorporation of 1D Nano-architectures with CZTS Quantum Dots for Photoelectrochemical Hydrogen Production

- Prepared **$Cu_2ZnSnS_4$ (CZTS)** quantum dots (QDs) by hydrothermal method
- Prepared **Graphene & CNT** modified **$BiVO_4$, ZnS & ZnO** thin films by spray pyrolysis, SILAR & sol-gel method respectively.
- Performed characterization on CZTS QDs modified metal oxide for the determination of phase, morphological, elemental and optical properties by XRD, Raman, EDX, FESEM, HRTEM & UV-Vis, photoluminescence.
- Performed PEC studies on these thin films which include I-V characteristics, Mott-Schottky analysis, Transient Open Circuit Potential analysis, Electrochemical impedance spectroscopy, efficiency measurement

Oct '14 – Jan '17 **UGC NET- Senior Research Fellow @ Dayalbagh Educational Institute, Agra, India**

Oct '12 to Sep '14 **UGC NET- Junior Research Fellow @ Dayalbagh Educational Institute, Agra, India**

- Prepared **PbS & ZnO** quantum dots (QDs) by SILAR & wet chemical method
- Prepared nanostructured **$TiO_2$ & $Fe_2O_3$** thin films by electrodeposition & sol-gel method and modify them with CdSe, PbS & ZnO QDs
- Performed characterization on these thin films for the determination of phase, morphological and optical properties by XRD, Raman, FESEM, HRTEM & UV-Vis.
- Performed PEC studies on these thin films which include I-V characteristics, Mott-Schottky analysis, Transient Open Circuit Potential analysis, efficiency measurement

### Teaching Experience:

- 1.5 year experience in teaching M.Sc. (practical) & B.Sc. (theory & practical) classes at Deptt. of Physics, Jamia Millia Islamia, New Delhi (Jan '19 to May '20)
- 9 Months experience in teaching M.Sc. theory & practical classes at Deptt. of Physics, St. John's Degree College, Agra (July'17 to May '18)

### PUBLICATIONS (in refereed journals & UGC-CARE list):

1. **A. Ikram**, M. Zulfequar, Visible light driven CZTS QDs /α-Fe2O3-Graphene p-n heterojunction for photoelectrochemical water splitting, *Nanotechnology*, 34, 315403, 2023 [I.F- **3.5**]
2. **A. Ikram**, M. Zulfequar, Elucidating the role of CZTS QDs and CNTs for boosting the photoelectrochemical response of $TiO_2$, *Journal of Material Science: Materials in Electronics*, 34:1769, 2023 [I.F- **2.8**]

3. **A. Ikram**, M. Zulfequar, V.R. Satsangi, Role and prospects of green quantum dots in photoelectrochemical hydrogen generation: A review, *International Journal of Hydrogen Energy*, 47(22), 11472-11491, 2022 [I.F.- **7.2**]
4. **A. Ikram**, M. Zulfequar, ZnS/CZTS QDs modification for escalating photoelectrochemical properties of α-$Fe_2O_3$ thin film, *Physica B: Condensed Matter* 632(1), 413763, 2022 [I.F.- **2.8**]
5. **A. Ikram**, S. Dass, R. Shrivastav and V.R. Satsangi, Integrating PbS Quantum Dots with Hematite for Efficient Photoelectrochemical Hydrogen Production, *Phys. Status Solidi A,* 216(7), 1800839-46, 2019. [I.F.- **2.0**]
6. S. Sahai, **A. Ikram**, S. Rai, S. Dass, R. Shrivastav and V.R. Satsangi, Quantum dots sensitization for photoelectrochemical generation of hydrogen: A review, *Renewable and Sustainable Energy Reviews*, 68, 19-27, 2017. [I.F.- **15.9**]
7. S. Rai, **A. Ikram**, S. Sahai, S. Dass, R. Shrivastav and V.R. Satsangi, CNT based photoelectrodes for PEC generation of hydrogen : A Review, *International Journal of Hydrogen Energy*, 42(7), 3994-4006, 2017. [I.F.- **7.2**]
8. **A. Ikram**, S. Sahai, S. Rai, S. Dass, R. Shrivastav and V.R. Satsangi, Improved charge transportation at PbS QDs/$TiO_2$ interface for efficient PEC hydrogen generation, *Physical Chemistry Chemical Physics*, 18, 15815-15821, 2016. [I.F. - **3.67**]
9. S. Sahai, **A. Ikram**, S. Rai, S. Dass, R. Shrivastav and V.R. Satsangi, Augmented Photoelectrochemical Response of CdS/ZnS Quantum Dots Sensitized Hematite Photoelectrode, *International Journal of Energy Research*, 40: 1811–1819, 2016 [I.F. – **4.3**]
10. **Ashi Ikram**, Sonal Sahai, Snigdha Rai, Sahab Dass, Rohit Shrivastav and Vibha R. Satsangi, Enhanced photoelectrochemical conversion performance of ZnO quantum dots sensitized α-$Fe_2O_3$ thin films, *International Journal of Hydrogen Energy,* 40 (16), 5583-5592, 2015. [Impact Factor- **7.2**]
11. S. Rai, **A. Ikram**, S. Sahai, S. Dass, R. Shrivastav and V.R. Satsangi, Photoactivity of MWCNTs modified α-$Fe_2O_3$ photoelectrode towards efficient solar water splitting, *Renewable Energy*, 83, 447-454, 2015. [I.F.- **8.7**]
12. S. Rai, **A. Ikram**, S. Sahai, S. Dass, R. Shrivastav and V.R. Satsangi, Morphological, optical and photoelectrochemical properties of $Fe_2O_3$-GNP composite thin films, *RSC Advances*, 4, 17671-17679, 2014. [I.F. – **3.9**]
13. S. Sahai, **A. Ikram**, S. Rai, S. Dass, R. Shrivastav and V.R. Satsangi, CdSe quantum dots sensitized nanoporous hematite for photoelectrochemical generation of hydrogen, *International Journal of Hydrogen Energy*, 39, 11860–11866, 2014. [I.F. - **7.2**]
14. **A. Ikram**, S. Sahai, S. Rai, S. Dass, R. Shrivastav and V.R. Satsangi, Synergistic effect of CdSe quantum dots on photoelectrochemical response of electrodeposited α-$Fe_2O_3$ films, *Journal of Power Sources*, 267,664-672, 2014[I.F.- **9.2**]

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Total No. of International/ National Conferences attended- 10

1. (Proceeding Paper) **A. Ikram**, S. Sahai, S. Rai, S. Dass, R. Shrivastav and V.R. Satsangi, Wide Band Gap Quantum Dots Sensitized α-$Fe_2O_3$ Thin Film for Solar Generation of Hydrogen, *MRS Online Proceedings Library, 1738,* 54-59, 2014

## Achievements:

- Best Poster Award in International Conference on "Advanced Functional Materials & Devices" (AFMD-2021) organized by Atma Ram Sanatan Dharma College (University of Delhi), Delhi, 3-5 March 2021
- Awarded international travel support by DST-ITS committee for presenting a paper in 4$^{th}$ Int. Conf. on Nanotek and Expo, San Francisco, California, USA held from 01/12/2014 to 03/12/2014 (SB/ITS/04329/2014-2015)
- Best Oral Presentation award in National System Conference on Super Intelligent Machines and Man (NSC-2017) organized by Dayalbagh Educational Institute, Agra, 01-03 Dec 2017
- Best Poster Award in 3$^{rd}$ International Conference on Nanostructured Materials and Nanocomposites (ICNM-2015) organized by Hindustan College of Science and Technology, Farah , Mathura from 12-14 Dec 2015
- Best Oral Presentation in the National Conference on Recent Trends in Chemical & Environmental Sciences (RTCES-2014) organized by Arni University, Kangra from 27-28 Feb 2014