

**Dr. ANEETA KHARKWAL**

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**Designation:** Assistant Professor, Department of Chemistry,  
S. V. Govt. P. G. College Lohaghat.



### **ACADEMIC QUALIFICATION**

- **Ph. D, Chemistry, Indian Institute of Technology (IIT),** New Delhi, India, with thesis title “Chalcopyrite and Hybrid Semiconductors Synthesized by Non-vacuum Based Methods” 9.25 CGPA.
- Qualified **CSIR–NET-JRF.**
- **B.ED.,** Kumaun University, Nainital, Uttarakhand, India, **First Division**
- **M.Sc.,** Chemistry, Kumaun University, Nainital, Uttarakhand, India, **First Division.**
- **B.Sc.,** Physics, Chemistry, Mathematics, Kumaun University, Nainital, Uttarakhand, India, **First Division.**

### **TEACHING/ RESEARCH EXPERIENCE:**

- Postdoctoral Fellow, **Department of Chemistry, University of Delhi,** India
- Assistant Professor, **University of Delhi** India.
- CSIR-Senior Research Fellow, **National Physical Laboratory,** New Delhi, India
- CSIR- Junior Research Fellow, **National Physical Laboratory,** New Delhi, India

### **AWARDS AND ACHIEVEMENTS:**

- Awarded **Junior Research Fellowship** by CSIR
- Awarded **Senior Research Fellowship** by CSIR
- Awarded **National Post Doctoral Fellowship (N-PDF)** by SERB

## **PUBLICATIONS**

1. **A. Kharkwal**, G. Purohit, Rahul, D. S. Rawat “Zinc Oxide Sensitized Graphene Quantum Dots “ZnO-GQDs”: A Hybrid Concept to Study Charge Transfer and its Catalytic Applicability to Synthesize Tetrasubstituted Propargylamines”, **Asian Journal of Organic Chemistry**, <https://doi.org/10.1002/ajoc.202000460> (**Impact factor:3.13**)
2. G. Purohit, **A. Kharkwal**, D. S. Rawat “CuIn-ethylxanthate, a “Versatile Precursor” for Photosensitization of Graphene-Quantum Dots and Nanocatalyzed Synthesis of Imidazopyridines with Ideal Green Chemistry Metrics” **ACS Sustainable Chem. Eng.** 8 (2020), 5544–5557, ISSN: 2168-0485 (**Impact factor:7.63**)
3. S.B. Tyagi, **A. Kharkwal**, Nitu, Mamta Kharkwal, Raghunandan Sharma “Synthesis and Characterization of Layered Double Hydroxides Containing Optically Active Transition Metal Ion” **Solid State Sciences** 63 (2017) 93-102 ISSN: 1293-2558 (**Impact factor 2.434**)
4. **A. Kharkwal**, Nitu, K. Jain, S. B. Tyagi, M. Kharkwal “Novel synthesis of selective phase-shape orientation of AgInS<sub>2</sub> nanoparticles at low temperature” **Colloid and Polymer Science**, Accepted: 2015, DOI 10.1007/s00396-015-3574-z 5 ISSN: 0303-402X 7(293), p. 1953-1959(**Impact factor 1.723**)
5. **A. Kharkwal**, K. Jain, S.B. Tyagi, A.K. Singh, S. N. Sharma, M. Kharkwal” One-Pot Synthesis of CuInS<sub>2</sub> and CuInS<sub>2</sub>/MS (M=Cd, Zn) Core-shell Luminescent Nanocrystals: A Low-Temperature and Low-Cost Approach” **Colloid and Polymer Science** DOI: 10.1007/s00396-014-3326-5, 292, pages2913–2926(2014) (**Impact factor 1.723**)
6. D. Verma, **A. Kharkwal**, S.N. Singh, P.K. Singh, S.N. Sharma, S.S. Mehdi, M. Husain “Application of ZnO nanoparticles to enhance photoluminescence in porous silicon and its possible utilization for improving the short wavelength quantum efficiency of silicon solar cell” **Solid State Sciences** 37 (2014) 13-17 ISSN: 1293-2558 (**Impact factor 2.434**)
7. P. Chawla, A.K. Srivastava, **A. Kharkwal**, A.K. Singh, S. N. Sharma, “Study of Variation of Zn:Sn in Organically Synthesized Chalcopyrites of CZTSe” 28th European Photovoltaic Solar Energy Conference and Exhibition. 2470-2474. (2014).

8. **A. Kharkwal**, S. N. Sharma, K. Jain, A.K. Singh “A solvothermal approach for the size-, shape- and phase-controlled synthesis and properties of CuInS<sub>2</sub>” **Materials Chemistry and Physics** vol. 144 issue 3 April 15, 2014. p. 252-262, DOI: 10.1016/j.matchemphys.2013.12.023. ISSN: 0254-0584 (**Impact factor 3.408**)
9. **A. Kharkwal**, S. N. Sharma, K. Jain, L. Arora, P. Chawla, A. K. Singh, S. Chand, “Polymeric stabilization of hybrid nanocomposites: a comparison between in situ and ex situ-grown CuInS<sub>2</sub> in poly(3-hexylthiophene) polymer” **Colloid and Polymer Science** vol. 291 issue 11 November 2013. p. 2607 – 2617, DOI: 10.1007/s00396-013-2967-0. ISSN: 0303-402X (**Impact factor 1.723**)
10. D. Verma, S.N. Sharma, **A. Kharkwal**, G. Bhagavannarayana, M. Kumar, S.N. Singh, P.K. Singh, S.S. Mehdib, M. Husain, “Role of nanocrystalline ZnO coating on the stability of porous silicon formed on textured (100) Si” **Applied Surface Science** vol. 285 November 15, 2013. p. 564-571, DOI: 10.1016/j.apsusc.2013.08.094. ISSN: 0169-4332
11. **A. Kharkwal**, S. N. Sharma; S. Chand, A. K. Singh, “Hybrid organic (P3HT and MEH-PPV)-inorganic (CuInGaSe<sub>2</sub>) nanocomposites: charge transfer and photostability studies” Proc. SPIE. 854916th International Workshop on Physics of Semiconductor Devices, 85493E. (October 15, 2012) doi: 10.1117/12.927367(**Impact factor 6.182**)
12. **A. Kharkwal**, S. N. Sharma, S. Chand, A. K. Singh, “Effect of linker on the photosensitization of ZnO layers with CdSe quantum dots” **Colloid and Polymer Science** vol. 290 issue 1 January 2012. p. 49 – 61, DOI: 10.1007/s00396-011-2517-6. ISSN: 0303-402X (**Impact factor 1.723**)
13. **A. Kharkwal**, M. Deepa, A. G. Joshi, A. K. Srivastava, “Red to Blue High Electrochromic Contrast and Rapid Switching Poly (3,4-ethylenedioxyppyrole)–Au/Ag Nanocomposite Devices for Smart Windows” **ChemPhysChem** vol. 12 issue 6 April 18, 2011. p. 1176-1188, DOI: 10.1002/cphc.201000973. ISSN: 1439-4235 (**Impact factor 3.14**)
14. M. Deepa, **A. Kharkwal**, A. G. Joshi, A. K. Srivastava, “Charge Transport and Electrochemical Response of Poly(3,4-ethylenedioxyppyrole) Films Improved by Noble-Metal Nanoparticles” **The Journal of Physical Chemistry B** vol. 115 issue 22 June 09, 2011. p. 7321-7331, DOI: 10.1021/jp201055y. ISSN: 1520-6106 (**Impact factor 2.95**)

## **PAPERS PRESENTED IN CONFERENCES:**

1. **A. Kharkwal**, Nitu, K. Jain, S. B. Tyagi, M. Kharkwal “One-pot synthesis of AgInS<sub>2</sub> and AgInS<sub>2</sub>/MS (M=Cd, Zn) core-shell Luminescent nanocrystals” **Indo-Japan Symposium on Chemistry of Functional Molecules/ Materials (DU-JAIST-2016)** during 26<sup>th</sup>-27<sup>th</sup> February, 2016 (organized by Department of Chemistry, University of Delhi) **Poster Presentation.**
2. **A. Kharkwal**, S. B. Tyagi, K. Jain, J. Singh, M. Kharkwal “In situ-Synthesis of CuInS<sub>2</sub>/CuIn<sub>x</sub>Ga<sub>1-x</sub>S<sub>2</sub> poly (3-hexylthiophene) organic-inorganic hybrid nano-composites” **International Conference on Recent Advances in Nano Science and Technology (RAINSET-2015)** during 7<sup>th</sup> to 10<sup>th</sup> July, 2015, (Organized by Sathyabhama university, Chennai) **Oral Presentation**
3. **A. Kharkwal**, S. B. Tyagi, K. Jain, M. Kharkwal. “Solvothermal Synthesis of Nanocrystalline CuInS<sub>2</sub>(CIS), Cu(In<sub>x</sub>Ga<sub>1-x</sub>)S<sub>2</sub> (CIGS) and CuInSe<sub>2</sub> (CISE): A phases controlled approach” **9<sup>th</sup> National Conference on Solid State Chemistry and Allied Areas (ISCAS-2015)**, during May 8<sup>th</sup>-10<sup>th</sup>, 2015 (Organized by Bhaskaracharya College of Applied Sciences, University of Delhi) **Poster Presentation**
4. **A. Kharkwal**, K. Jain, S. N. Sharma, N. Vijayan, S. Chand, A.K. Singh “Synthesis of luminescent CuInS<sub>2</sub> nanoparticles using single precursor source and their surface modification” **International Conference on Materials Science and Technology (ICMST 2012)** during 10<sup>th</sup> to 14<sup>th</sup> June 2012 (Organized by Department of Physics St. Thomas College Pala, Kottayam, Kerala, India) **Poster presentation. ,**
5. K. Jain, **A. Kharkwal**, Leena, S. N. Sharma, S. Chand “Synthesis of Highly Luminescent Ternary CuInS<sub>2</sub> Nanocrystals” **International Conference on Nanoscience and Technology (ICONSAT–2012)** during January 20<sup>th</sup>–23<sup>rd</sup>, 2011 (Organized by ARCI, India, at Hyderabad) **Oral Presentation.**
6. **A. Kharakwal**, K. Jain, S. N. Sharma, N. Vijayan, S. Chand, A.K. Singh, “Effect of solvent on the properties and structure of CuInS<sub>2</sub> nanoparticles synthesized by solvothermal route” **International Conference on Nanoscience and Technology (ICONSAT–2012)** during 20<sup>th</sup>–23<sup>rd</sup>, 2011 (Organized by ARCI, India, at Hyderabad) **Poster presentation.**

7. **A. Kharkwal**, S. N. Sharma, S. Chand, A.K. Singh, “Hybrid Organic (P3HT & MEH-PPV)-Inorganic (CuInGaSe<sub>2</sub>) Nanocomposites: Charge Transfer & Photostability Studies” **XVI<sup>th</sup> International Workshop On The Physics Of Semiconductor Devices (IWPSD-2011)** during 19<sup>th</sup> to 22<sup>nd</sup> December 2011, (Organized at IIT Kanpur) **Poster Presentation.**
8. S. N. Sharma, **A. Kharkwal**, A. Joshi, K. Jain “Effect of Linker on the Photosensitization of ZnO layers with CdSe Quantum Dots” **International materials research congress (IMRC-2010)** during 15<sup>th</sup>-19<sup>th</sup> August 2010 (Organized at Cancun, Mexico) **Poster Presentation**
9. **A. Kharkwal**, M. Deepa, A.K. Srivastava “Composite films of Poly (3,4-ethylenedioxyppyrole)-Au/Ag nanoparticles films: Enhanced electrochromic and redox activity” **Indo-Russian workshop on nanotechnology and laser induced plasma (IRNANO-2009)** during 24<sup>th</sup>-26<sup>th</sup> November, 2009 (Organized by Department of Physics, university of Delhi, at New Delhi) **Oral Presentation.**

#### **CONFERENCE / WORKSHOP / ATTENDED**

1. Participated in **Workshop on Material Characterization Techniques**, during 12<sup>th</sup> -16<sup>th</sup> July 2010 (organized by the national physical laboratory, New Delhi)
2. **3<sup>rd</sup> Asian Conference on Coordination Chemistry (ACCC-3, 2011)** during 17<sup>th</sup>-20<sup>th</sup> October 2011 (organized by IIT Kanpur and IIT Delhi).
3. International Conference on **Emerging Trends in Drugs Development and Natural – Products (ETDDNP-2018)**, during 12<sup>th</sup> -14<sup>th</sup> January 2018 (organized by University of Delhi).
4. **ACS on Campus event** at University of Delhi, 5<sup>th</sup> February 2018.

#### **WEBINAR ATTENDED**

1. Participated in the AISNP Webinar Lecture Series on the topic of “Fun of Playing around NMR Spectroscopy” delivered by Dr. Diwan S Rawat, Professor, Department of Chemistry, University of Delhi, India, held on 13 June, 2020, organized by Amity

International Society for Natural Products, Health & Allied Sciences Domain, Amity University Uttar Pradesh, Noida (INDIA).

2. Participated in the SERB-ACS National Postdoctoral Fellow (NPDF) Online Research Poster Competition 2020 in the category of Chemical Sciences.

### **ORIENTATION / INDUCTION/REFRESHER**

1. Participated in the On-Line Faculty Induction Programme from 17 July 2021 to 24 August 2021 organized by **UGC Human Resource Development Centre, Aligarh Muslim University, Aligarh.**

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**Date**