YASHIKA GUPTA

Curriculum Vitae

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EXPERIENCE

Postdoctoral Fellow

Indian Institute of Technology, Bombay

Feb 2019 – Feb 2022 Mumbai, India

- Development and characterization of 2D materials like Ruddlesden Popper perovskites, TMDs for photonic and optoelectronic applications.
- Fabrication of nanoparticles and nanostructures for nanophotonic applications.
- Integrating Plasmonics with 2D materials for optoelectronic and energy applications.
- Mentoring PhD, MTech and MSc students for their thesis work.
- Teaching assistantship for BTech and MSc batches in Physics and Nano- laboratory.

Guest Lecturer

S.G.T.B. Khalsa College, University of Delhi

Jan 2018 – Dec 2018 Delhi, India

- Taught two subjects (a) Semiconductor devices (b) C Programming to undergraduate BSc(H.) Electronics students.
- Mentored lab sessions and annual projects.
- Wrote popular/academic science articles for Physics Education India and UK magazine.

Guest Lecturer

S.G.T.B. Khalsa College, University of Delhi

Sept 2016 – Dec 2016 Delhi, India

- Taught the subject of Basic Circuit Theory and Network Analysis to undergraduate BSc(H.) ELectronics students.

PROJECTS

Plasmonics and Nanophotonics

Institute PDF, IIT Bombay

2019 - ongoing

- Fabrication of gold nanostructures and perovskite quantum dots.
- Integrating plasmonic nanostructures with 2D materials to study energy and charge transfer phenomenon.

Photovoltaics

Institute PDF, IIT Bombay

2019 - ongoing

- Study of 2D and quasi-2D perovskite thin films for optoelectronic applications.
- Mechanical study of perovskite for usage in flexible electronics.

OBJECTIVE

Help make a better world with sustainable development.

KEY ACHIEVEMENTS

Institutional Postdoctoral fellowship by IIT Bombay
Feb 2019 - ongoing

INSPIRE fellowship by Department of Science and Technology, INDIA.
2014-2018

Gold Medal
Smt. Shanti Devi Bhargava Memorial Gold Medal for securing First rank in University in master program.

Gold Medal
for securing First rank in graduation by Hansraj College, University of Delhi.

Junior Research Fellowship by University Grant Commission (UGC), India.
Fellowship offered for pursuing Doctoral studies in India.

Sh. Vijay Malhotra Prize and Dr. Rajbeer Singh Prize
for academic excellence in university examinations in graduation.

SKILLS

Hard-worker | Strong working relationships | Motivator & Leader

Python | Lumerical | C/C++ | Linux | Data analysis softwares like Origin, WSXm etc.

Thermal Evaporation | Sputtering (DC/RF) | Wet Bench Chemical synthesis like Hydrothermal | Spin Coating | Glovebox Usage

LANGUAGES

English ● ● ● ● ●

Hindi ● ● ● ● ●

- Fabrication and characterization of Quasi-2D Ruddlesden Popper Perovskite based solar cells.

Advanced Material Synthesis and Thin Film fabrication

INSPIRE Fellowship, Department of SCinece and Technology (DST), India

2014-2018

- Fabrication and study of Inorganic Chalcogenide (CdS, SnS) and Perovskite ($CsPbI_3$) thin films.

EDUCATION

Ph.D. in Electronics

University of Delhi, India

2014 - 2019

Area: Applied Physics, Thin film, Photovoltaics

Thesis title: Development, Characterization and Optimization of p-SnS Thin Films for Photovoltaic Applications.

M.Sc. Electronics

Department of Electronic Science, University of Delhi

2011 - 2013

Percentage : 86.14%

B.Sc. Electronics (H)

Hansraj College, University of Delhi

2008 - 2010

Percentage : 83.16%

MAIN PUBLICATIONS

15+ publications in International peer reviewed journals

- “Tailoring the mechanical response of Ruddlesden Popper lead halide perovskites” **Yashika Gupta**, S.Rathore, A.Singh, A.Kumar, Journal of Alloys and Compounds 901 (2022) 163575.
- "Gate tunable light-matter interaction in natural biaxial hyperbolic van der Waals heterostructures" A.Bapat, S.Dixit, **Yashika Gupta**, A.Kumar, arXiv preprint arXiv:2110.07526, 2021.
- “A Novel Route for Fabrication of Stable CsPbI3 Perovskite Thin Film by Thermal Evaporation” **Yashika Gupta**, Arun Palakkandy, Stepan V.Syrotyuk, Kuldeep Kumar, Smriti Arora ChemistrySelect 4 (2019) 1.
- “Mitigating Reasons for the Poor Performance of n-CdS/p-SnS Solar Cells” **Yashika Gupta**, Chhaya Ravikant, P.Arun Global Challenges 2 (2018) 1800017.
- “Analysis of Zener-like Behaviour of p-SnS/ZnO and p-SnS/ZnS Heterojunctions” **Yashika Gupta**, P.Arun Materials Research Express, 5 (2018) 036409.
- “Contribution of Lattice Parameter and Vacancies on Anisotropic Optical Properties of Tin Sulphide” C.I.Zandalazini, J.Navarro Sanchez, E.A.Albanesi,**Yashika Gupta**, P.Arun Journal of Alloys and Compounds, 746 (2018) 9 .
- “Optimization Of SnS Active Layer Thickness For Solar Cell Application” **Yashika Gupta**, P.Arun Journal of Semiconductors, 38 (2017) 113001.
- “Influence Of Strain On The Sensitivity Of Tin Sulphide Films” **Yashika Gupta**, P.Arun Materials Chemistry and Physics, 191 (2017) 86.
- “Influence Of Urbach Tail On The Refractive Index Of p-SnS Thin Films” **Yashika Gupta**, P.Arun Physics Status Solidi-C, 14 (2017) 1600207 .
- “Grain Size And Lattice Parameter’s Influence On Band-Gap Of SnS Thin Nanocrystalline Films” **Yashika Gupta**, P.Arun, A.A. Naudi, M.V. Walz, E.A. Albanesi Thin Solid Films, 612 (2016) 310.
- “Suitability Of SnS Thin Films For Photovoltaic Application Due To The Existence Of Persistent Photocurrent” **Yashika Gupta**, P.Arun Physics Status Solidi-B, 3 (2016) 509.
- “Analysing The Diode With A Shunt Resistance In The Piecewise Model” **Yashika Gupta**, P.Arun Journal of Active and Passive Electronic Devices 14 (2019) 1.

ACADEMIC ARTICLES

- “A Comment on the Dependence of LED’s Efficiency on Junction Ideality Factor” Anubhav Sethi,**Yashika Gupta**, P.Arun Physics Education UK, 53 (2018) 035024.
- “How A Diode Tames The Sun ” **Yashika Gupta** Physics Education India, 33 (2016) 4.
- “First Step To Ellipsometry” **Yashika Gupta**, P.Arun International Journal of Physics, 3 (2015) 8.

Google Scholar Credentials

Citations : 86
h-index : 5
i10-index : 2