

# Curriculum Vitae

Arun Singh Chouhan

## PERSONAL DATA

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DATE OF BIRTH: 12 Feb 1991  
GENDER: Male  
ADDRESS: SF-08, Centre for Nanoscience and Engineering,  
Indian Institute of Science,  
Bangalore, India - 560012  
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aruniitpatna@gmail.com  
CATEGORY: General

## CAREER OBJECTIVE

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To work and advance with an organization/institute that offers excellent growth and contribution opportunity based on performance and potential.

## EDUCATION

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AUG 2015 - PRESENT Ph.D. in Engineering  
**Indian Institute of Science (IISc), Bangalore, India**  
CPI: 6.5/8.0  
FACULTY ADVISER: DR. SUSHOBHAN AVASTHI, ASST. PROF., IISc

AUG 2013 - JULY 2015 Master of Technology in 'Nanoscience and Technology'  
**Indian Institute of Technology (IIT), Patna, India**  
CPI: 9.31/10  
FACULTY ADVISER: DR. AJAY D. THAKUR, ASST. PROF

AUG 2008 - JULY 2012 Bachelor of Engineering in 'Electronics and Communication Engg. (ECE)'  
**Rajiv Gandhi Technical University (RGTU), Bhopal**  
PERCENTAGE: 85.16%

MAY 2007 - APRIL 2008 A.I.S.S.C.E.  
**Kendriya Vidyalaya No. 3 Bhopal**  
PERCENTAGE: 71.00%

## SCHOLARSHIPS AND CERTIFICATES

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JULY 2015 Scholarship under 'Visvesvaraya PhD scheme for Electronics and IT' for Ph.D  
(Duration: Full Ph.D. Programme)

SEPT 2014 DAAD scholarship to pursue M.Tech. thesis work at TU-Darmstadt, Germany  
(Duration: 07 Months; Sept 2014- March 2015)

JULY 2013 MHRD scholarship for full-time M.Tech. programme  
(Duration: Full M.Tech. Programme)

MARCH 2013 Graduate Aptitude Test in Engg. (GATE)-2013 percentile (in ECE) : 99.58 %

## ACADEMIC ACHIEVEMENTS

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JULY 2015 Institute Silver Medal for M.Tech. programme  
JULY 2012 University Silver Medal for B.E. programme

## RESEARCH INTERESTS

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- Semiconductors :- Organic/Inorganic semiconductors as solar absorber, Semiconductor-oxide heterojunction, Carrier lifetime spectroscopy, Band-Gap engineering, material/optical characterization, Magnetism
- Solar Cell :- All-oxide PV, Perovskite solar cell, Device architecture, Interface properties of heterojunction, Electrical characterization

## TECHNICAL SKILLS

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- 3 year experience of working in 'CLASS 100/CLASS 1000' clean room
- Thin film deposition: : Pulsed laser deposition (PLD), Sputtering, Thermal evaporation, Atomic layer deposition, Spin Coating
- Material Characterization : XRD, XPS, UPS, SEM
- Optical Characterization : UV-Vis spectroscopy, Solar Simulator, Carrier lifetime measurements, Ellipsometry, TRPL
- Device Characterization : DC probe station, Capacitance-Voltage measurements, Transient light measurements
- Others: Glove box, Chemical/Acid handling

## LANGUAGES

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HINDI: Mothertongue  
ENGLISH: Fluent  
GERMAN: Basic Knowledge

## INTERESTS

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- Interests : Computer gaming, Electronic circuit building.  
Hobbies : Badminton and Cricket

## JOURNAL ARTICLES

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- **Arun Singh Chouhan**, Naga Prathibha Jasti, and Sushobhan Avasthi "Effect of interface defect density on performance of perovskite solar cell: Correlation of simulation and experiment", Materials letters, DOI: 10.1016/j.matlet.2018.03.095
- **Arun Singh Chouhan**, Eashwer Athresh, Rajeev Ranjan, Srinivasan Raghavan and Sushobhan Avasthi, "BaBiO<sub>3</sub>: a potential absorber for all-oxide photovoltaics", materials Letters, DOI: 10.1016/j.matlet.2017.09.038
- **Arun Singh Chouhan**, Naga Prathibha Jasti, Shreyash Hadke, Srinivasan Raghavan and Sushobhan Avasthi, "Large grained and high charge carrier lifetime CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> thin-films: implications for perovskite solar cells", Current Applied Physics, DOI: 10.1016/j.cap.2017.07.005
- **Arun Singh Chouhan**, Naga Prathibha Jasti, and Sushobhan Avasthi, "Ozone-Treated Aluminum Doped Zinc Oxide for ETL-Free CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> Solar Cells: Interface Role", Organic Electronics DOI:doi.org/10.1016/j.orgel.2018.12.030
- **Arun Singh Chouhan**, **Akash Singh**, and Sushobhan Avasthi, "Effect of Methylamine Vapor Exposure and Ambient Ageing on Caesium-Methylammonium Lead Iodide-Bromide

Perovskites for Improved Carrier Collection”, Under Review

## CONFERENCES

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- **Arun Singh Chouhan**, Naga Prathibha Jasti and Sushobhan Avasthi, "Ozone-Treated Aluminum Doped Zinc Oxide for ETL-Free Stable Perovskite Solar Cells" – 7th IEEE World Conference on Photovoltaic Energy Conversion (WCPEC-7)-2018, Waikoloa Hawaii, USA.
- Akash Singh, **Arun Singh Chouhan** and Sushobhan Avasthi, "Interaction of Humidity and Polar Molecules with Mixed Cation Perovskite for High Efficiency Solar Cells: Materials and Device Study" – 17th International Conference on Thin Films 2017, New Delhi, India.
- Akash Singh, **Arun Singh Chouhan** and Sushobhan Avasthi, "Methylamine Vapor Annealing for Improved Morphology and Stability of Cesium-methylammonium Lead Halide Perovskite Thin-Films" – 19th International Workshop on Physics of Semiconductor Devices 2017, New Delhi, India.
- **Arun Singh Chouhan**, Naga Prathibha Jasti and Sushobhan Avasthi, "Compact-TiO<sub>2</sub> Deposited via ALD for Highly-Repeatable and Low-Hysteresis Perovskite Solar Cells" – MRS Spring Meeting -2017, Phoenix, USA.
- **Arun Singh Chouhan**, Naga Prathibha Jasti and Sushobhan Avasthi, "Perovskite Grain Size modulation by annealing in Methyl-Amine Environment" – 44th IEEE Photovoltaic Specialist Conference (PVSC)- 2017, Washington, D.C., USA.