Shikhar Arvind **Last update: Jun 7, 2022**

CONTACT INFORMATION
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EDUCATION

imec-KU Leuven, Heverlee, Belgium 2021–Present

- Doctoral student working in the AttoLab and Etch group with main focus on interference lithography techniques for EUV (extreme ultraviolet) light and plasma etch transfer processes for the same.

KTH Royal Institute of Technology, Stockholm, Sweden 2019–2021

- Masters in Nanotechnology, Nanoelectronics Track
- GPA: **4.9/5** – via 90 credits. [Scale: A=5, B=4.5, C=4, D=3.5, E=3, F=fail]
- Relevant Courses - *Optical Engineering, Simulation of Semiconductor Devices, Fundamentals of Photonics, Compound Semiconductors and Photonic Devices, Nanofabrication techniques (CMOS process flow), Microsystem Technology (MEMS), Methods of analysis for nanomaterials, Design of Nano Semiconductor Devices (transistor design and physics)* .

Indian Institute of Science (IISc), Bengaluru, India. 2015–2019

- Bachelor in Science (Material Science and Engineering Major)
- GPA: **6.5/8** – via 131 credits.

EXPERIENCE

- **Investigation of GaN based HEMTs for power electronic applications (Master's Thesis)** January 2021 - Present
  RISE Research Institutes of Sweden, Kista, Stockholm, Sweden
  Supervisor: *Dr. Qin Wang*
  The AlGaN (Aluminium Gallium Nitride) /GaN (Gallium Nitride) HEMTs (High Electron Mobility Transistors) for power electronic applications will be focused in this project. As known, research on GaN based power devices have revealed their better efficiency compared to Si power devices, however, a limitation of GaN HEMTs is their low current rating. The master's thesis will involve in the device design and characterization for different types of the HEMTs.
- **ASML Best of Tech Business Course** April 2021
  Attendee of Best of Tech Business Course 2021 organised by ASML. The online event introduced semiconductor manufacturing technology and the skills needed to work at the leading-edge tech company. Students worked together on case studies, joined QAs, listened to presentations and spent time networking. The selection was 2 round process including a video interview.
- **ZEISS Autumn School of Semiconductor Optics** September 2020
  Attendee of the ZEISS online autumn school. It included talks by industry leaders on the state of the art technology in Photolithography, DUV lithography, EUV lithography, High NA EUV, Photomasks for EUV and Metrology for semiconductor optics.
- **Encapsulation of Perovskite solar cells (PSC) [Bachelor's Thesis]** July 2018– Dec 2018

Institute of Microstructure, Karlsruhe Institute of Techonology, Germany.
Supervisor : *Dr. Ulrich W. Paetzold*
PSC have made rapid progress in terms of efficiency and manufacturing methods in the past decade with the reported efficiencies over 20 %. Whilst this is great a thrust for the commercialization of PSC, there are still some major problems with regards to stability of the cells. Encapsulation is one of the methods to improve the stability and lifetime of PSC and this project involved testing different methods and encapsulants for the optimal encapsulation strategy for PSC. A baseline stability of over 100 h was obtained under accelerated climatic conditions compared to 1 h of bare cells.

- **Synthesis of Lead Telluride(PbTe) nanotubes** May 2017– July 2017
Materials Research Center, Indian Institute of Science, Bengaluru, India.
Supervisor : *Prof. N Ravishankar*
PbTe is a thermoelectric material which has been shown to convert thermal energy with reasonable efficiency. Different methods are being employed to increase this efficiency and one such method is nanostructuring PbTe. In this project, we aimed at economical methods to synthesize PbTe nanotubes and understand its growth mechanism. Solvothermal techniques were used to synthesize the nanotubes and were further analysed using transmission electron microscope (TEM).

Extra-curricular Work

- **Voluntary work** July 2017
Bijapur, Karnataka, India
In the present day and age, the mentality of the youth of India is primarily constricted to pursue medicine or engineering. This is quelling the research potential from this huge population of youth in India. To help this situation I volunteered to deliver talks and speeches at various schools in the city of Bijapur, Karnataka, India to increase the awareness among students and adults on pursuing **"Research as a career in India"** .

- **NoteBook Drive**
Indian Institue of Science(IISc), Bengaluru, Karnataka, India
Facilitator, NoteBook Drive (NBD) Programme, IISc : This is a student run voluntary organization to promote science education among students of the underprivileged sections of society in and around Bengaluru by creating awareness and motivating high school students towards higher education.

Research Interests

- Optical systems for ultrafast lasers.
- Ultrafast kinetics of photoresists for EUV lithography.
- Patterning techniques for High NA(numerical aperture) EUV lithography.

Honors and Awards

- Recipient of the KTH Scholarship for Master students.
- Sitaram Jindal Foundation Medal for best academic performance in Bachelor's (Materials major/track).
- Fellow of KVPY (Kishore Vaigyanik Protsahan Yojana),a National Program of Fellowship in Basic Sciences, initiated and funded by the Department of Science and Technology, Government of India, to attract exceptionally highly motivated students for pursuing basic science courses and research career in science.

Languages

English, Hindi, Kannada.

Hobbies Calisthenics, Weightlifting, Swimming, Trekking, Computers, Video Games, Open source software.

References Available on request.