

## Sagnik Dasgupta

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To whom it may concern,

I am writing to express my interest in applying to join your project on group IV optoelectronics as a PhD student.

I earned my Bachelor of Science degree in Materials Science from the Indian Institute of Science. During the course of my study, I had the opportunity to be exposed to a very broad variety of fields. With time I started specializing my interests in materials for electronic applications, and consequently took several courses on semiconductor device physics and material growth and synthesis. I had the opportunity, as an undergrad, to work on delamination techniques of CVD graphene and fabrication of strain sensors using the same. My next project, however, was to work on multijunction thin film solar cells in Dr. Friedhelm Finger's group at Forschungszentrum Jülich, in Germany. That project introduced me to the field of photovoltaics and various physics aspects necessary to understand device performance. It also trained me in various characterization techniques in the field.

Having enjoyed that work greatly, I moved to the US to work on my master's thesis in Materials Science in Dr. Zachary Holman's group at Arizona State University. My work here is mostly centered around novel carrier selective and passivating contacts for silicon heterojunction solar cells. I have had the opportunity to work on fabrication of HIT cells, as well as electrical and materials characterization of these devices. I have trained on tools for QSSPC, EQE, suns-Voc, TLM etc. on the electrical side and SEM, EDX, FIB, TEM to name a few on the materials side. I have also extensively worked on simulation of SHJ cells, and tunnel oxide based solar cells using AFORS-HET, PC1D, and ASA (TU Delft). I have also had the opportunity to be a core part of a project aiming to understand the fundamental physics affecting the characteristics of a highly passivating, carrier selective contact to a solar cell and its effect on device performance through simulations. These skills, training, and my strong fundamentals, I strongly believe, will translate well to research on group IV light emitters for this project.

My time in ASU, also gave me the opportunity to spend a semester as a TA for a structure of materials course for undergrads, earning me an award for "Outstanding teaching Assistant". I have a passion for teaching and science communication through presentation. My ultimate career goal is to be a faculty at a university where I will have the opportunity to train the next generation of scientists to have an opportunity to change the world. I strongly believe that all that I will learn from working on my PhD at your group will put me on the path towards achieving this goal.

I will be completing my masters this fall, and will be able to join the program early next year. It would be my privilege to have the opportunity to interview with you about this.

Thank you for your consideration. My CV and transcripts are attached.

Sincerely,

Sagnik Dasgupta