

SCISOC SPOTLIGHT

BY THE CAMBRIDGE UNIVERSITY SCIENTIFIC SOCIETY

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RESEARCH FOCUS:

HIGH ENERGY PHYSICS

I am searching for **signs of new particles** that may briefly form in the high energy proton-proton collisions at the **Large Hadron Collider**. The lack of discovery to date tells us that any new physics may not be easy to find; whether it be Dark Matter which makes up 85% of the mass of the universe, or other new particles that decay to Dark Matter. The possible signatures of new particle production can be complex and difficult to pick out of the abundant Standard Model processes. My research focuses on the **design of novel and sensitive searches for new physics**, such as **Supersymmetry**, using the ATLAS detector. Supersymmetry offers a potential solution by introducing many new particles, the lightest of which is an excellent dark matter candidate. I push the sensitivity of our searches for Supersymmetry and new physics in general, with the **ultimate goal of a discovery of a new particle** that will help us understand the composition of our universe.

WHY RESEARCH?

For me, it's simply my personal drive to understand the as-yet unexplained Dark Matter in our universe. Ever since I learned the huge number of open questions we still have about fundamental aspects of our universe, I felt a strong need to contribute and help find the missing pieces of the puzzle. The Large Hadron Collider was soon to start up as I finished my undergraduate degree and the timing was perfect to step into this huge experimental effort and make an impact.



"My advice would be to keep an eye on what is happening in your wider field to understand the bigger picture and put time aside every week to simply think."

ONE PIECE OF ADVICE...

Research can all too often have a narrow focus as we try to solve the day-to-day problems to reach our final goals.