

CAN YOU TELL US ABOUT YOUR CURRENT RESEARCH AND WHAT EXCITES YOU MOST ABOUT IT?

My research for Q-BIOMED focuses on the characterisation of ball-milled nanodiamonds and diamond nanopillars fabricated from bulk diamonds tailored to quantum sensing. These diamond nanoparticles have a notable concentration of nitrogen vacancy centres (NV), making them useful for nanodiamond-based sensing schemes. Another avenue of my research is based around using single NVs in nanodiamonds to test the quantum nature of gravity.



The stark contrast between these two applications is exciting to me. It is also exciting to work on nanodiamonds that have real world biomedical applications and getting to work with other hub members.

WHAT DOES A TYPICAL DAY LOOK LIKE FOR YOU IN THE LAB?

Most of my day involves using various microscopy methods, such as atomic force, scanning electron and confocal microscopy. To characterise small diamonds, I deposit them on a gridded silicon wafer. Then, I perform spin relaxation and spin coherence measurements with a home-built confocal microscope. Using scanning electron microscopy and atomic force microscopy, I search for the measured nanoparticles to obtain a 3D profile and determine the suitability for various applications.

WHAT INSPIRED YOU TO ENTER THE FIELD OF QUANTUM SCIENCE?

I was first introduced to quantum research through my final undergraduate project, which consisted of building a simple NV magnetometer. I thoroughly enjoyed the project and learned lots of technical skills. This inspired me to work as a researcher in the field. Quantum technology is an engaging and fun field as you are working on impactful and cutting-edge technologies of the future.

WHAT INSPIRED YOU TO ENTER THE FIELD OF QUANTUM SCIENCE?

My interests outside of physics research are running and baking.