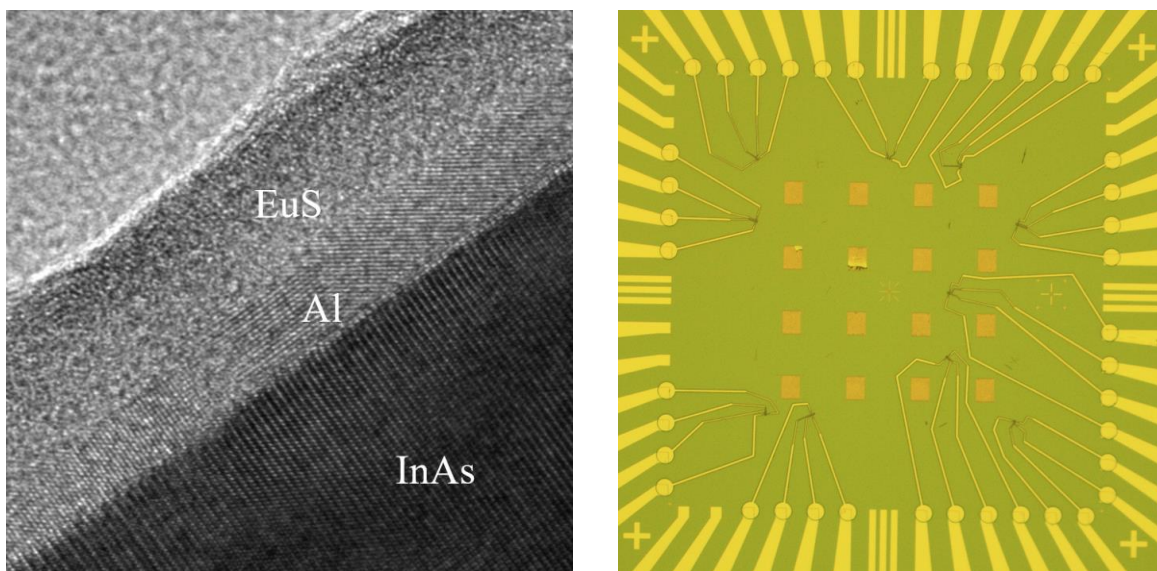


Bachelors and Masters Student Projects:

Ferromagnetic hybrid nanowire development for quantum devices

Center for Quantum Devices

Ferromagnetic hybrid nanowires provide possibilities to extend the current research of semiconductor-superconductor hybrid nanowires. The student projects will focus on devices based on in-house synthesized semiconductor-superconductor-ferromagnetic insulator hybrid nanowires. Their performance plays a critical role in determining the performance of the whole chip. Currently, we are optimizing the growth of a new type of ferromagnetic nanowires, characterizing their microstructures, and improving their device performance. Based on these, we can deliver desired hybrid nanowires for further quantum transport device study, e.g., ferromagnetic Josephson junctions. Read about related experiments here: <https://arxiv.org/abs/1910.03364>



Left panel: image taken by transmission electron microscopy to show the atomic arrangement of EuS layer, Al layer or InAs core in hybrid nanowires.

Right panel: optical microscope image to show details within a chip of nanowire devices.

The projects require close interactions with researchers who are growing the semiconductor heterostructures. The projects will involve structure characterization, nanoscale device fabrication, electrical transport measurements and advanced data acquisition/analysis. The candidate will have a good chance to have hands-on state-of-the-art instrumentation throughout the project.

If you are interested, do not hesitate to contact supervisors:

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