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Image created in the Veinot  
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*Images of Research Competition*  
*University of Alberta*

# Silicon Swirl

*Semi-finalist (2019)*

Silicon nanoparticles can be used in lithium-ion batteries, LEDs, and medical imaging. When these materials are smaller than 5 nm, they glow red under UV light. The color the particles emit can be changed by changing their size or what is on their surface. I am working to understand how the ordering of the atoms in the particle may also affect the luminescence properties (how well it glows). The nanoparticles in this image were made into a thin film so that I could look at the ordering of the atoms using x-ray diffraction. We can use this technique to understand how the atoms are ordered in the particle by extracting information related to the crystallite size.