

Title: Construction and Integration of Balloon-Borne Telescopes

The Balloon-borne Astrophysics group has opportunities for a variety of undergraduate positions in the construction and integration of the SPIDER and SuperBIT balloon-borne telescopes. SPIDER is a mm-wave telescope designed to search for the signature of gravitational waves from the epoch of cosmological inflation in the early Universe. It will make a 3 week flight from Antarctica in December 2020. SuperBIT is a wide-field visible/near UV diffraction-limited imaging telescope designed to measure the distribution of dark matter around over 100 massive galaxy clusters through both strong and weak lensing. It will be integrated over the summer of 2020 in preparation for a 100 day flight in 2021.

Projects include mechanical and electronic engineering, flight and ground software (C, C++, Rust), construction and debugging, data analysis, and flight observation planning. Experience in any of these areas is a plus, but only interest is required.

There are many opportunities on either telescope, and the project will be adjusted to fit the interests of the applicant. For more information about our group, see <https://sites.physics.utoronto.ca/barthnetterfield>

This project will be supervised by Prof. Barth Netterfield