

A SUMMER IN DEVLIN LAB

BY JACK VERNON LEE

The Cosmic Microwave Background

- The Big Bang occurred 13.8 billion years ago
- In the primordial universe, matter existed in a constant state of plasma
- 370,000 years later, the Universe cooled enough that protons and electrons combined into atoms.
- This "Recombination" released energy in the form of microwave radiation
- This radiation exists today in the form of the Cosmic Microwave Background (CMB), and we can study it to learn about the early Universe

Simons Observatory

- The Simons Observatory (SO) is a CMB research facility located in the Atacama Desert in Chile
- It is located at an altitude of 5200m
- In Devlin Lab, it was our responsibility to construct and test the Large Aperture Telescopic Receiver (LATR)
- My roles involved helping to deconstruct and reconstruct the LATR, assisting with the installation of 7 optic tubes for CMB detection, and designing proper mountings for important observatory equipment.

BLAST – The Next Generation

- BLAST is a balloon-based telescope experiment based in Antarctica.
- For the next generation of BLAST, Professor Devlin wanted to experiment with different flying apparatuses.
- It was my responsibility to design a prototype gondola that carries the telescope; create a reaction wheel to counteract the Antarctic winds; and write the code that would allow us to control the motion of telescope.

