

# M.Eng. and Undergraduate Project Announcement

## Telescope Vibration and Control project

Overview: Two students are sought for a project, in collaboration with the Astronomy department, on studying conceptual design concepts for a telescope they are going to build in Chile. The Cornell Caltech Atacama Telescope (CCAT) is to be a 25 meter aperture telescope operating down to 200 micron wavelength and sited above 5600 meters in the Atacama Desert region of Chile. More information can be found at [www.submm.org](http://www.submm.org).



Two students are sought, with the following goals, skills and timeframe:

*CCAT Project #1: Finite element modeling, and vibration analysis of telescope:* This project will involve a student developing a finite element model of several conceptual designs of the telescope, performing a trade study of different types of materials and configurations, and developing a model to be used in a subsequent control analysis. This is a two semester project, and is suited to a senior or MEng interested in, or has had Vibrations and FE analysis.

*CCAT Project #2: Control analysis of telescope:* This project will involve a student developing performing a control analysis of the telescope which utilizes the FE model from Project #1, including slewing design, pointing, and motor sizing. Also uniquely, this project includes a summer internship/coop with VertexRSI, the company who will build part of the telescope. This is a **two year** project, and is suited to a senior or MEng interested in, or has had Vibrations and Feedback Control systems.

**Faculty sponsor:** Prof. Mark Campbell (mc288)

### Application Instructions:

- 1) Download ([www.mae.cornell.edu/campbell/Student\\_Application.rtf](http://www.mae.cornell.edu/campbell/Student_Application.rtf))
- 2) Rename file "LastName\_FirstName" (either rtf or pdf)
- 3) Fill out application, including desired projects
- 4) Email to Prof. Campbell (mc288).