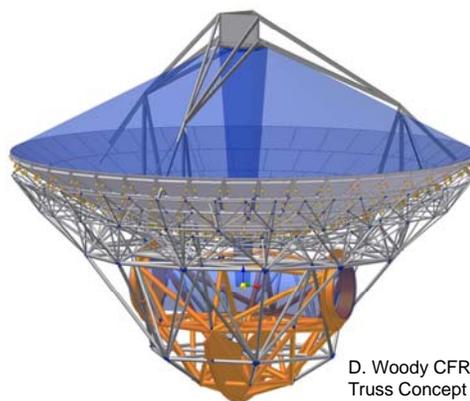


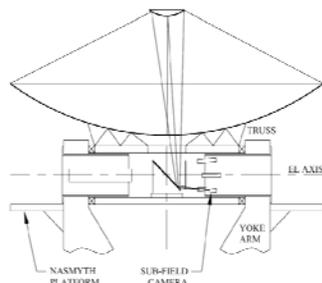


New CCAT Study Contracts Underway

U. Colorado has, on behalf of CCAT, contributed funding for three contracted study efforts. Already underway are studies of a CFRP primary mirror truss by Stutzki Engineering of Milwaukee, WI and of composite truss tube and joint designs by Composite Optics Inc. ATK of San Diego, CA. The principal objective is to determine whether performance (and cost) of a CFRP primary mirror truss will allow CCAT to operate in an open-loop mode for primary mirror segment control. David Woody (Caltech) provided a novel design concept which uses long CFRP tubes as flexures to accommodate differential thermal expansion between the low CTE truss and the steel elevation structure of the telescope mount. The third study is being negotiated with General Dynamics Satcom Technologies (Richardson, TX.) They will provide revisions of the design of the telescope mount to accommodate the CFRP truss, provide clear paths for the 1° FoV optical design, and provide initial Finite Element Modeling of the truss/mount assembly.



D. Woody CFRP Truss Concept



3 m diameter clearance within the elevation bearings. This design takes full advantage of the available FoV provided by the optics and is anticipated to keep CCAT relevant over its operational lifetime.

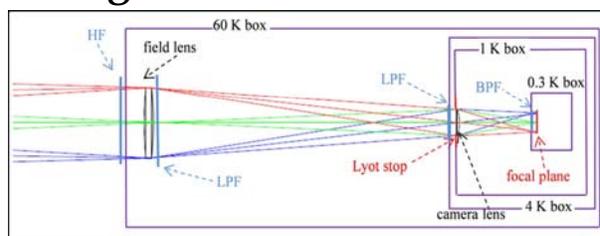
CCAT Increases Telescope FoV

Steve Padin (Caltech) has developed a 1 degree FoV design for CCAT which will substantially increase survey speeds and ensure that CCAT remains capable of implementing large FoV cameras at short submm wavelengths as detectors continue to advance. It is anticipated that an 850 μm camera covering the entire 1° FoV can be fielded at first light. Plans for imaging at 350 μm anticipate multiple cameras in a cluster.

Instrument locations remain at Nasmyth, but are now inside the 3 m diameter clearance within the elevation bearings. This design takes full advantage of the available FoV provided by the optics and is anticipated to keep CCAT relevant over its operational lifetime.

Cornell Submits Proposal for First Light CCAT Instrument

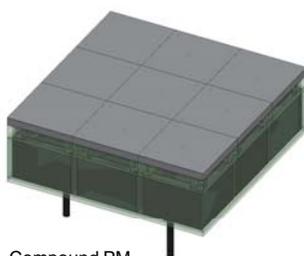
Gordon Stacey (Cornell) et al have submitted a proposal to the NSF for design and construction of the ATACamera, a two-band 350/850 μm imager using microwave kinetic inductance detector (MKID) arrays read out with commercially available digital microwave technology. The proposed core module will have 16,000 & 4000 pixels in its 350 and 850 μm bands, respectively. In the primary science band (350 μm), the core module itself will have three times the pixel count of the SCUBA-2 instrument. The instrument would be deployed first on the Caltech Submillimeter Observatory before the instrument becomes a CCAT 1st light asset.



CCAT at SPIE

CCAT Partners and contractors have submitted 8 papers for the International Society for Optical Instrumentation (SPIE) conference on Astronomical Telescopes and Instrumentation 2010, held from 26-June through 03 July in San Diego. The papers can be found online at <http://spie.org/x13662.xml> where one can search the program by author or keyword.

Vertex Antennentechnik Optic Study



Compound PM Segment Concept

U. Cologne is midway through managing a 2 year, €600K study of optics for CCAT funded by the State of Northwest Rhine Westphalia. The approach, illustrated on the left, employs Al surface “tiles” supported by a CFRP raft. The tiles are mounted to the raft and aligned via coordinate measuring machine at the CCAT site prior to installation in the array. The assembly needs to achieve ~5 μm rms optical figure and designs are nearing the goal of 15 kg/m² areal density.