



# Q&U BOLOMETRIC INTERFEROMETER

## Calibration with a microwave point source

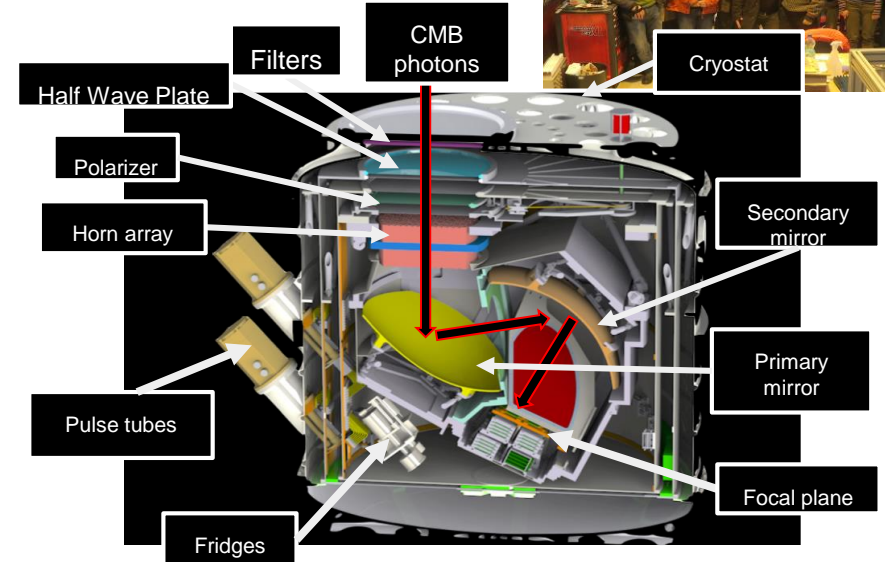
### A Bolometric Interferometer :

Combines the bolometer high sensibility and the systematics control offered by interferometry. It allows for spectro-imaging.

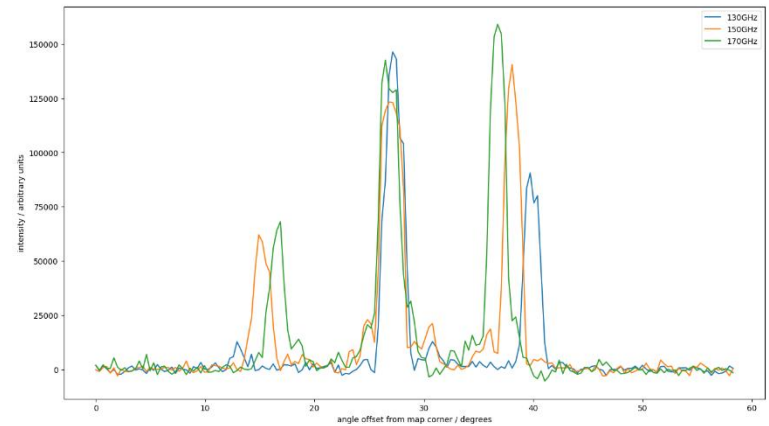
After the cryostat window, a polarizer and a half-wave plate modulate the sky polarization. An interference pattern is created by the horn array. A Gregorian telescope projects the image to a dichroic then to 2 focal planes equipped with 992 bolometers each. The instrument optics is at a temperature of 1K, suspended by carbon fibers, and the bolometers are cooled to 350mK.

The QUBIC interferometer allows the use of the radio technique of Aperture Synthesis. Thus, the instrument has a synthesized narrow antenna lobe, and the characteristic side lobes vary as a function of wavelength

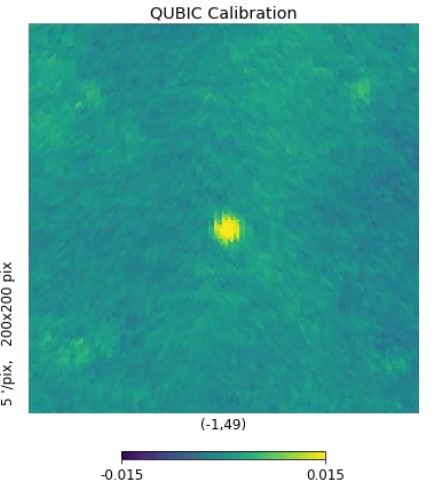
S. Loucatos,  
APC and Irfu-CEA, Paris  
Talk by JC Hamilton



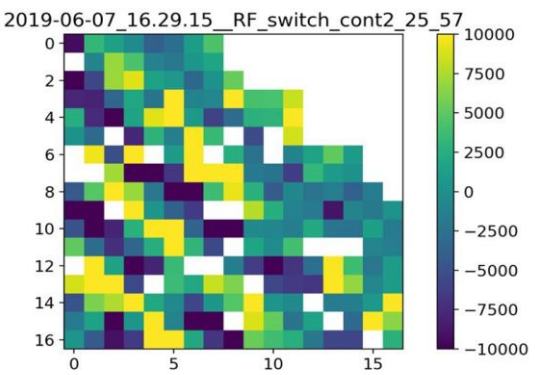
Diagonal cuts across synthetic beam map at 130, 150, and 170GHz



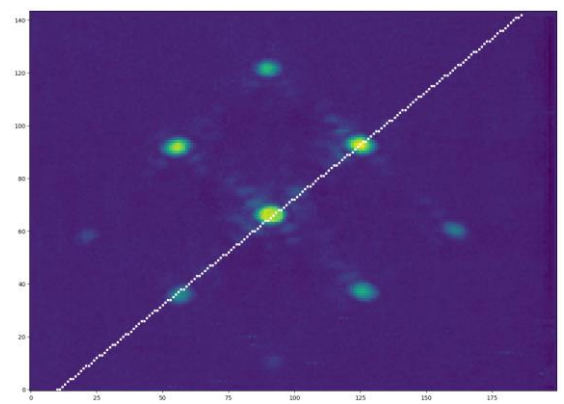
A cut across the maps at 130, 150 and 170 GHz. Coincident central lobe and secondary ones getting closer with increasing frequency



The reconstructed point source projected on the sky after deconvolution of the multiple-peaked synthesized beam by the map-making software.



Fringes measurement on a quarter of the focal plane, each pixel is a TES.



A synthetic beam map at 150 GHz.