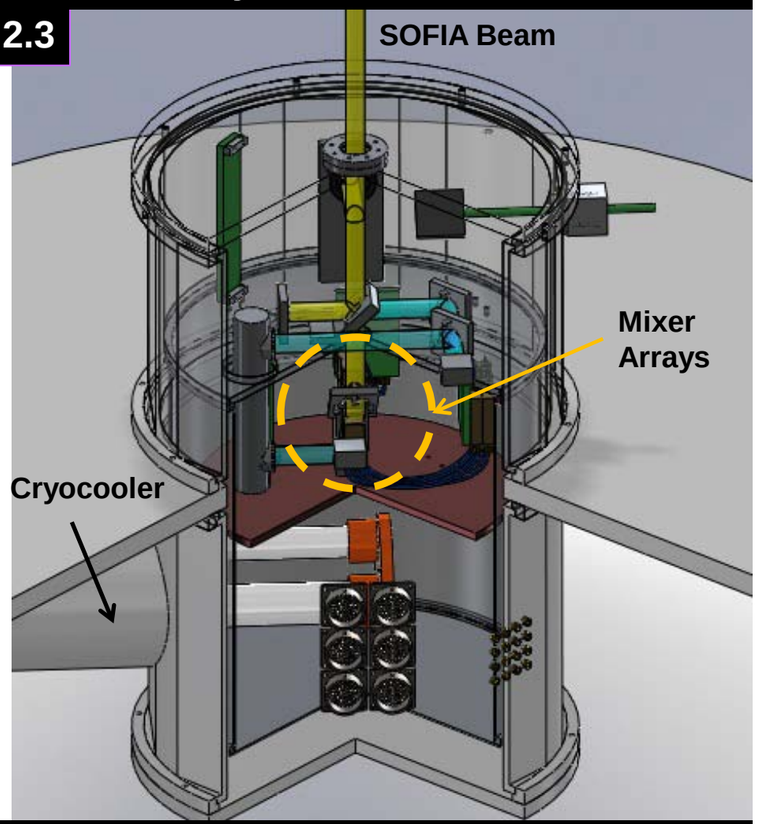
Fold-Out 2 (Instrument): *OCAM will demonstrate the key technologies needed to realize large-format, `Super'-teraHertz heterodyne arrays on SOFIA. OCAM's 16 pixel array will dramatically increase the ability of SOFIA to conduct the high spectral resolution surveys needed to untangle the complex nature of the ISM.*

Table 2.0 Mission Parameters

Item	Description
Telescope	2.5m Cassegrain
Target Frequency	[OI]: 4.7448 THz
Angular Resolution	6.2 arc seconds
Receiver Type	16-Pixel HEB Mixer Array
System Noise Temp	~2000K (DSB)
Spectrometer	Digital Correlators
Spectrometer Bandwidths	5.5 GHz - Corresponds to 347 km/s for [OI]
Spectrometer Resolution	6.45 MHz – Corresponds to 0.41 km/s for [OI]
Cryogenic System	4K Pulse Tube Cryocooler
Instrument Mass	100 kg on flange, 290 kg in PI racks
Instrument Power	10.8 kW
Platform	SOFIA

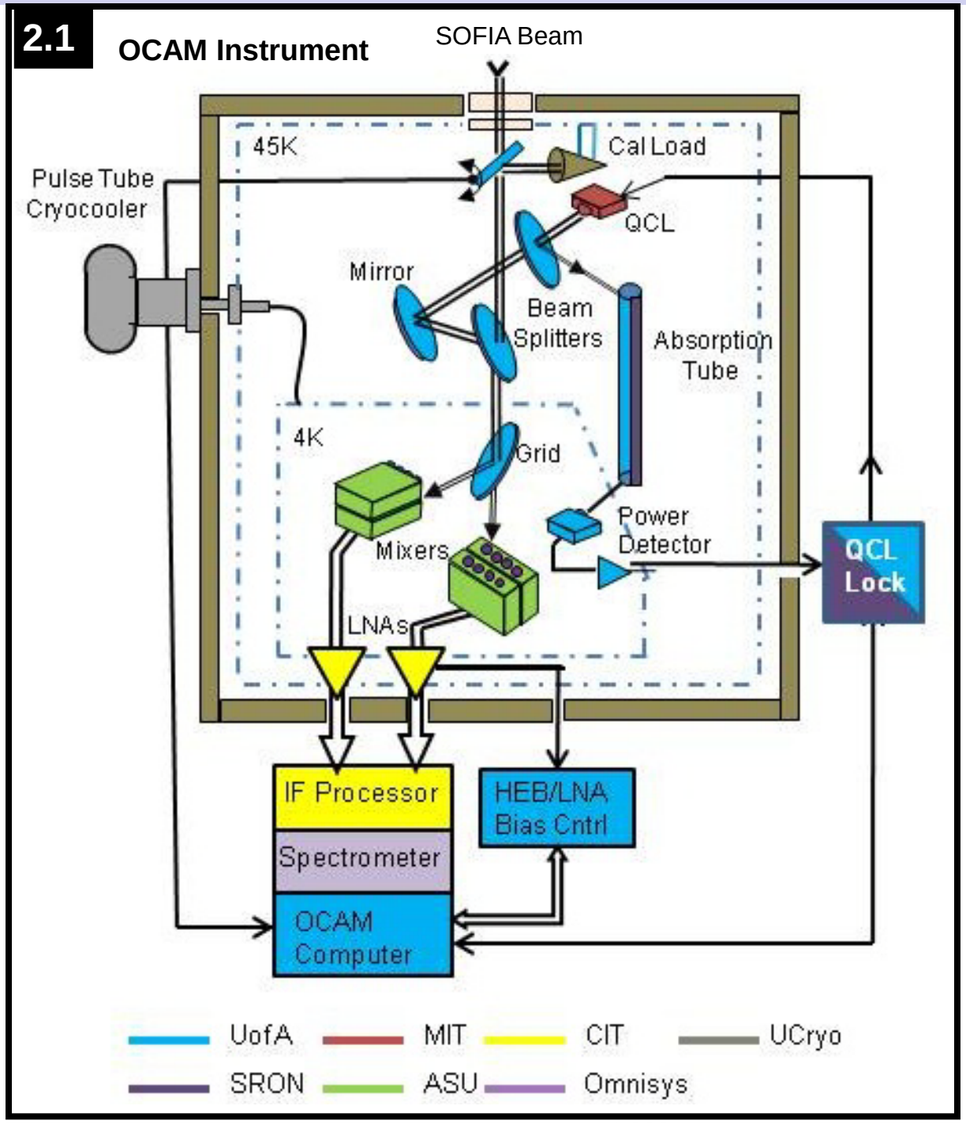
OCAM Cryostat

2.3

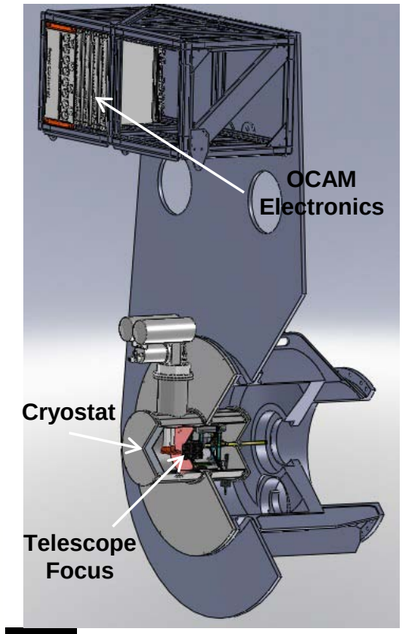


- Cryogen-Free: Cools instrument stages to 4K and 45K
- Based on reliable, low-microphonic pulse tube cooler

2.1 **OCAM Instrument**



2.2 ***OCAM's Telescope Mount***



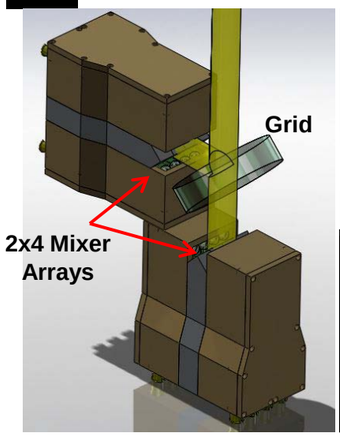
- Full Flange/No-coupler config.
- Compact, Light weight
- Self-Contained

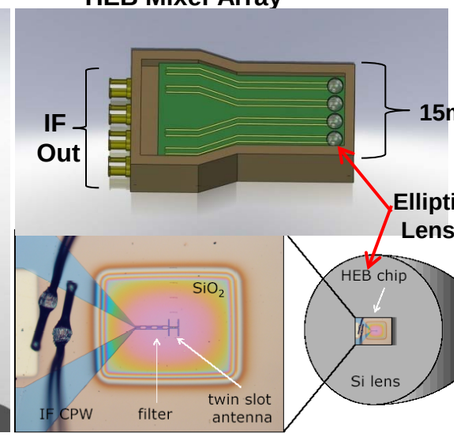
OCAM's Autocorrelation Spectrometer System

- Provides 16 x 5.5GHz bandwidth @ 6 MHz resolution
- Offers 347 km/s of velocity coverage
- ~90% efficient

2.7

2.5 **OCAM's HEB Mixers:** **1 x 4, 4.7 THz Quasi-Optical HEB Mixer Array**

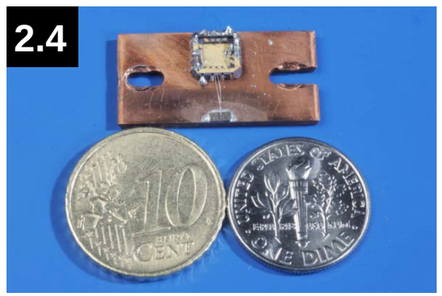




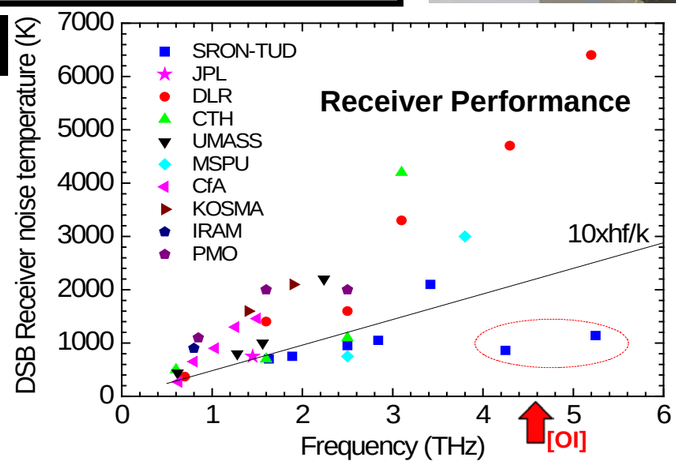
4.7 THz Quantum Cascade Laser

- High output power > 2mW
- Low input power
- Compact

2.4



2.6



Prototype 500GHz Quasi-optical array- SRON