

## TELBE beamtime: 06.12.2018 day shift

**Notebook:** Old TELBE Notebook (1)

**Created:** 06.12.2018 06:50

**Updated:** 09.12.2018 11:59

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JD  
6:30

- **there was no even order harmonic detected in the triangular graphene sample**
- now switching back to **CdAs**:
  - measure fluence dependence for 3rd harmonic with 700 GHz fundamental
  - similar to graphen experiment, we will use 2 700 GHz BP filters for the fundamental and combination of 2.1 THz and 155 micrometers filter in the detection

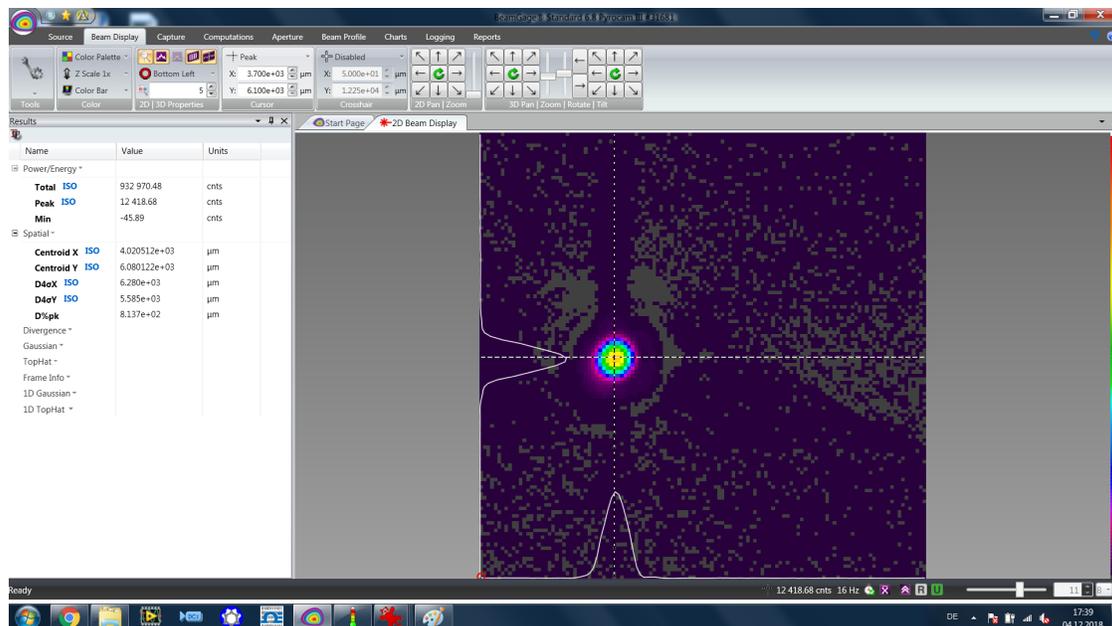
6:50

operators are still tuning for 700 GHz

7:05

tuning finished, now do characterization of 700 GHz tune.

- Power BDA: 95 mW, 43 mW through 700 GHz 20% BP
- power at sample position through tpx lens, polarizer flipped out: 55 mW (no BP filters), 62 mW with TPX lens removed
- power at sample position through TPX lens with 1 x 700 GHz 20% BP: 29 mW, 2 x BP: 21.2 mW, 21.0 with polarizer flipped in at 50°
- spot size at sample position with 2 x BP and TPX lens: 800  $\mu\text{m}$  (FWHM)
- optimize overlap at ZnTe position, with TPX lens. Had to move TPX lens slightly upward.



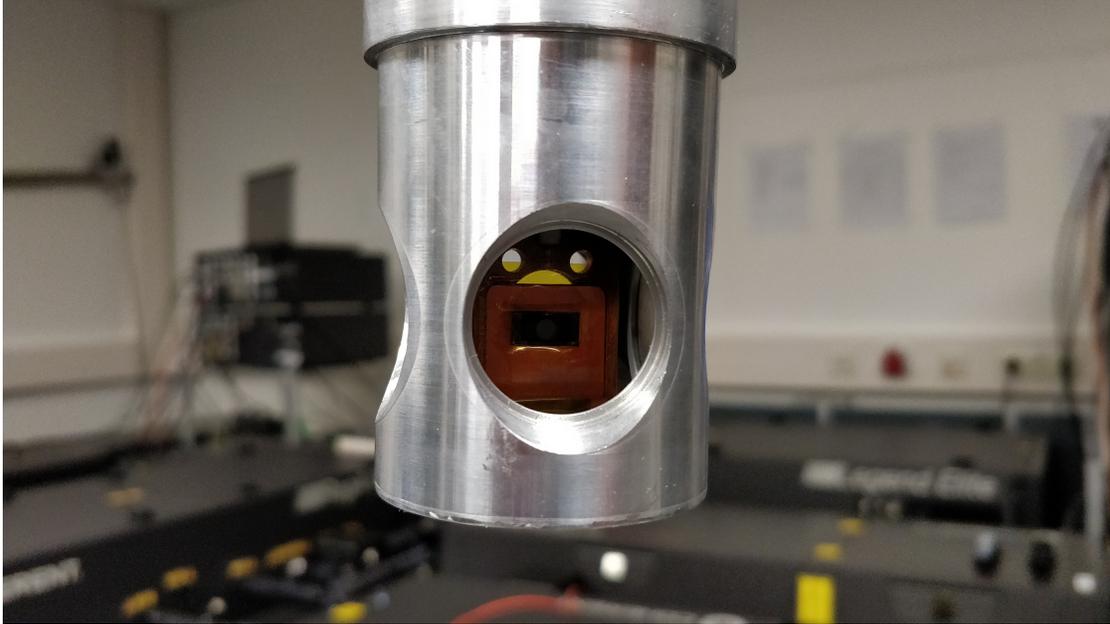
**- did not understand why diodes give so different signal amplitude in balanced state. Used the two newer diodes DET100A2 and signal can be balanced again**

8:22



11:00  
start tuning to 1 THz  
power BDA 1 THz BP/20%: 42 (still not finished tuning)  
12:00  
-> then Helium plant dropped out are waiting for He expert

15:00  
YBCO Sample mounted



15:34  
still no beam but helium plant is back working again

16:00  
pump down the vacuum  
10E-5 mbar

tune to 1 THz  
power BDA through 1 THBP20%: 44 mW

now tune back to 0.7 THz

16:58  
power BDA through 0.7 THz BP 20%: 51 mW, full beam: 126 mW

17:28  
set up synchronization

beam power dropped, asked for retuning

18:12  
measure beam profile at sample position  
vacuum: 2.7E-6 mbar

19:18  
beam size at sample position (with 1 filter): 1.2mm  
at ZnTe position (with 1 filter): 0.78mm

found time zero, at delay-stage position: 31.5 mm

asked for retuning

power after BDA: 46 mW with one 0.7THz filter

19:52

start EOS at sample position with 2 BP 0.7THz

power BDA: 126 mW / 49 mW

File: **001\_EOS\_2mm\_ZnTe**

gain 5, start 34mm, -0.1mm stepsize, 200steps