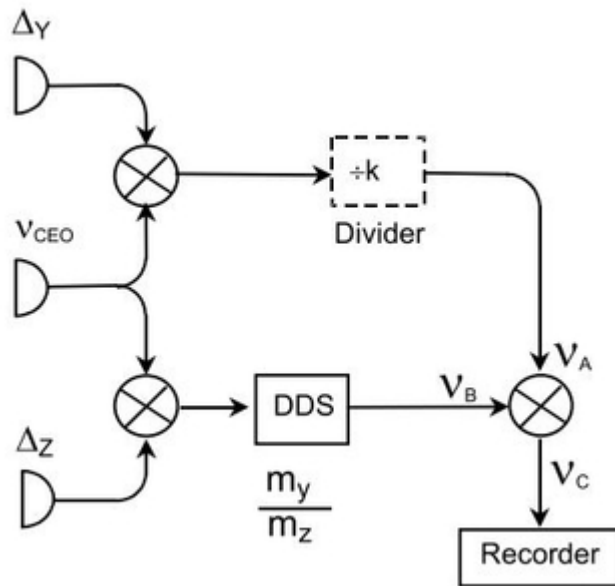


Virtual Beat Measurement

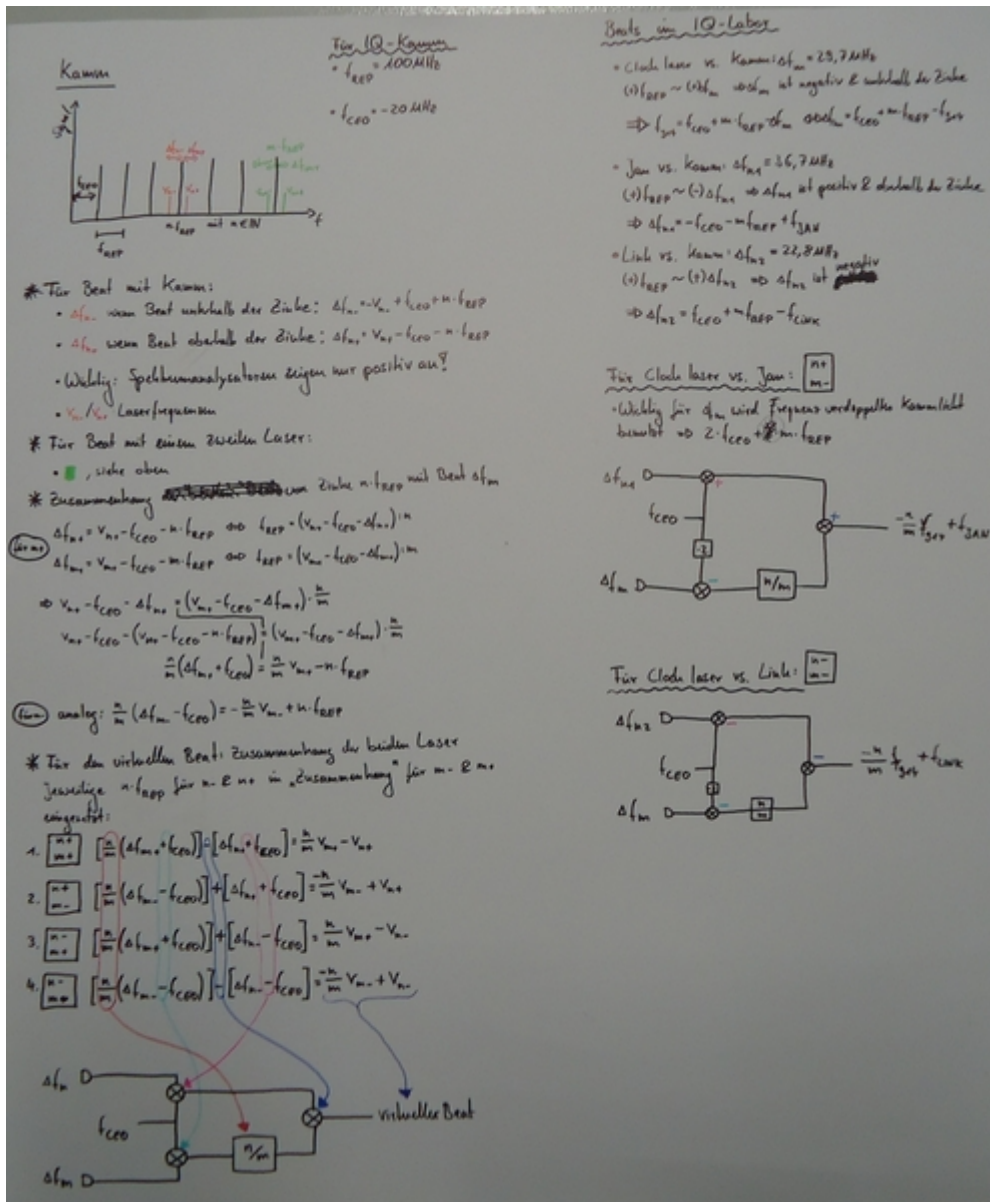
Scheme

Kerr-lens mode-locked lasers as transfer oscillators for optical frequency measurements
 , H. R. Telle et al., arXiv:physics/0107037v1 [physics.optics] (2001)



Theory

Equations for comb:



- For Total Virtual Beat double f_{CEO}
- Compare to Postprocessing Virtual Beat Measurement!
- You find a program, *Virtual Beat*, to simulate the virtual beat under: [\\afs.iqo.uni-hannover.de\projects\magnesium\Mathematica\Kamm](https://afs.iqo.uni-hannover.de/projects/magnesium/Mathematica/Kamm)

Frequencies

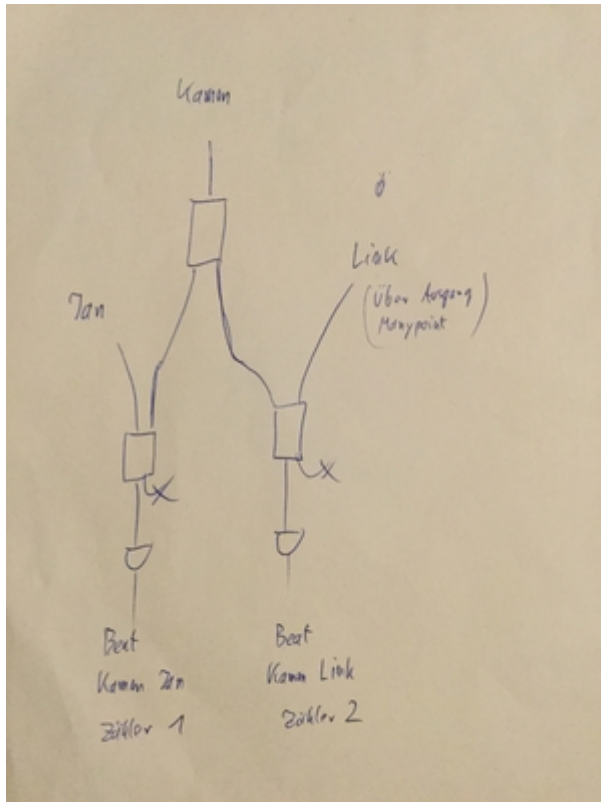
- Jan's Laser = 194.401.549 MHz (fine with Protocolbook 194.401.556 MHz).
- 916nm clock laser: 327.5291 THz (accuracy maybe worse than 100 MHz)

Measured with wavemeter in PTB (accuracy: ± 30 MHz):

- 194.400.001 MHz Laser
- -47 MHz Regel-AOM
- +36 MHz Manypoint-extraktion-AOM

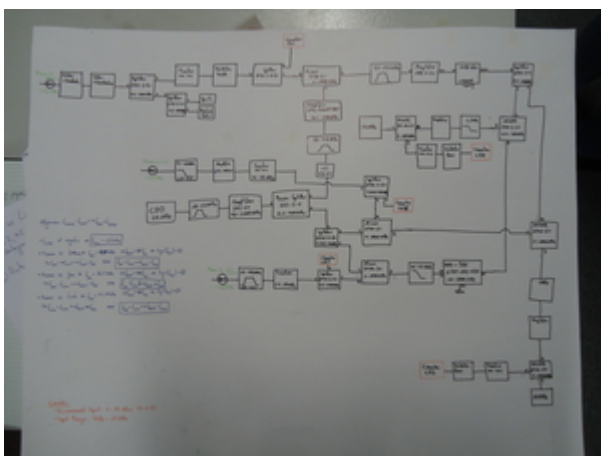
- blue = setup for measurement
- red = unstabilized fiber → keep it short!

Jan's laser vs. Comb Hannover and Link vs. Comb Hannover

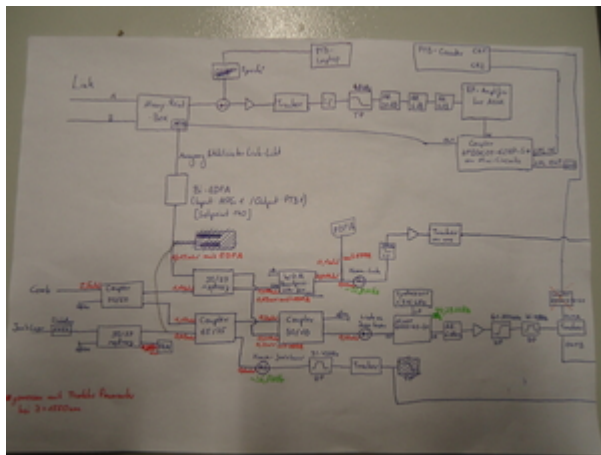


- Shift the ManyPointBox and Link to the optical table

Second Try



Final Setup



virtuel_beat - three_corner_head_measurement.pdf

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