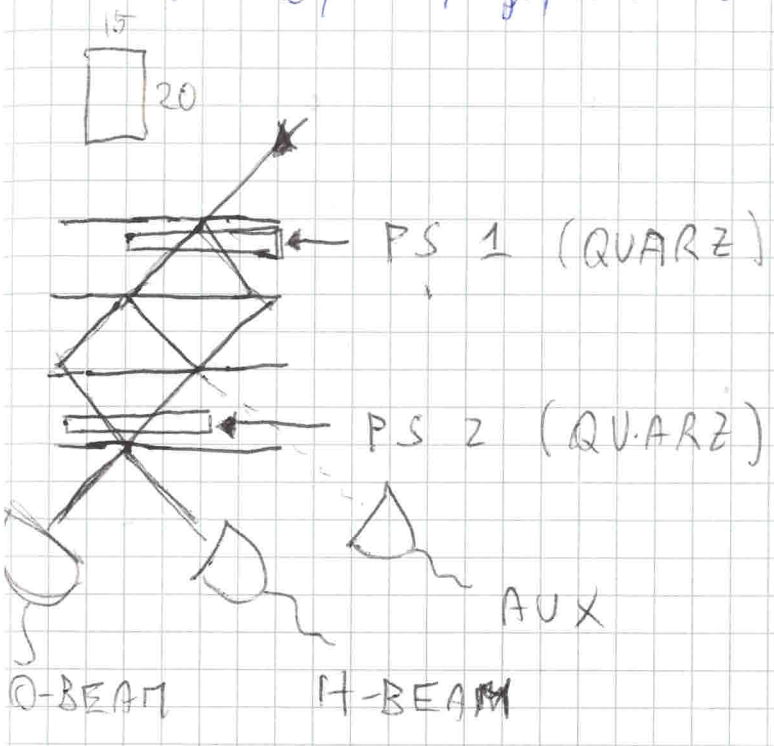
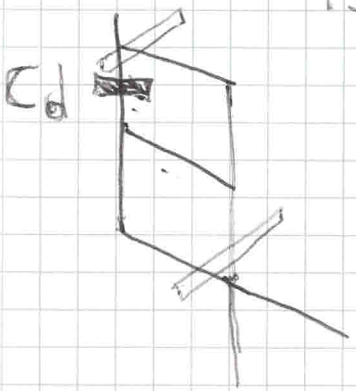
16.6.2025 3-16-109

Ismaele, Kazu, Yuji, Hartmut

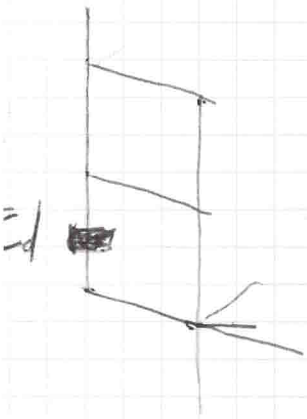


15:40 ROCKING CURVE + TILT



ϑ	Aux FWHM	in 2ϑ
-1,9	0,00056	2242
-1,85	7	1774
-1,95	43	2813
-2,0	41	3052
-2,05	41	2860
-2,10	56	2278
-2,0	41	3025

RO_16Jun1612



ifg 3p 5s 16Jun1618 no contrast
ifg2_3p 5s 16Jun1627

camera pos. IN (0-Beam): 133
OUT ~ 60

ifg 3p 120s_16Jun1643.ifg vert. phase gradient, low contr. <30%
0 on right side.

IPA shifted 10 mm → RO_16Jun1714

ifg3p120s_16Jun1720 0%

Glasblock + cloth ~~damped~~ replaced by standard plastic supports

g	FWHM 5 um	in 2s 0+H+Aux
-0,8	0,00076	6641
-0,85	60	7900
-0,9	53	8389
-0,95	58	7972
-1,0	70	7015
-0,9	52	8552

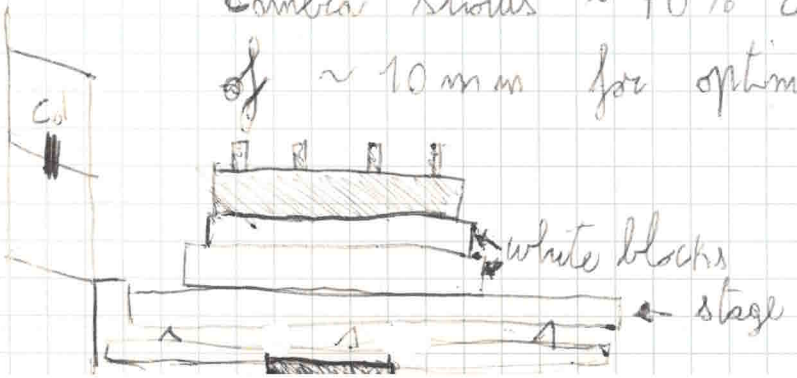
FWHM Aux: 0,00039 3629

17del -16Jun1829
1833 → -61,2 from the positive side

ifg1_3p5s_16Jun1840.del → 40%

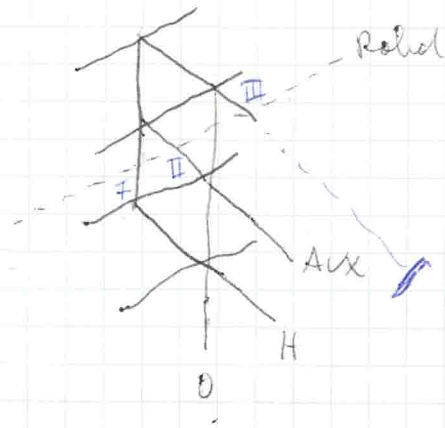
17.06

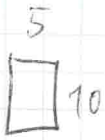
Camera shows ~ 70% contrast, interferometer lifted ~ 10 mm for optimal contrast and intensity



	0+H+Aux		Aux		
	g	FWHM	in 2s	FWHM	Max in 2s
	-0,9	0,00059	7683	0,00044	2941
	-0,85	56	8011	42	3177
	-0,8	58	7769	45	2969
→	-0,85	54	8264	42	3214

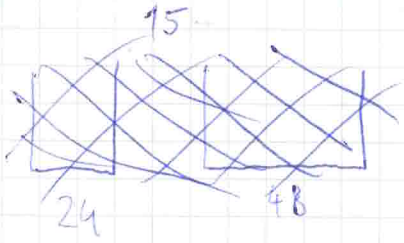
Robot-IN 250000
OUT 215000



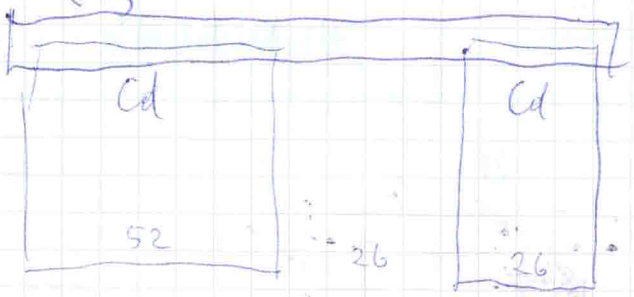


robot_diag-17Jun1510.dat

img-17Jun1536_5x10mm.tif @ Apertur Z = 17.89 Apertur Y = 19



robot diagonal
↳ 24mm Robot movement = 26 mm real distance



path1 path2 path3

	blocked:	open
-82000	none	
-58000	III	
-34000	II + III	I
-10000	I + II	III
+14000	I + III	II
+38000	II	
+62000	I	

Z_{IN} = 258000

robot_diag.17Jun1705.dat

162 8 FWHM$_{0+H+Ar}$

−0,85 0,00054

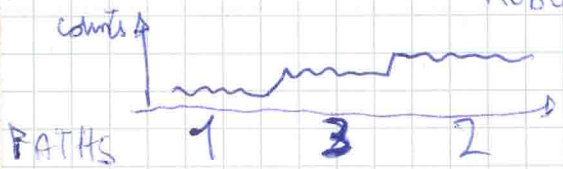
NIGHT SCAN

ROCKING.SC
BLOCK1.SC
IFG1_6P30S.SC
BLOCK2.SC
IFG1_6P30S.SC
BLOCK3.SC
IFG2_6P30S.SC

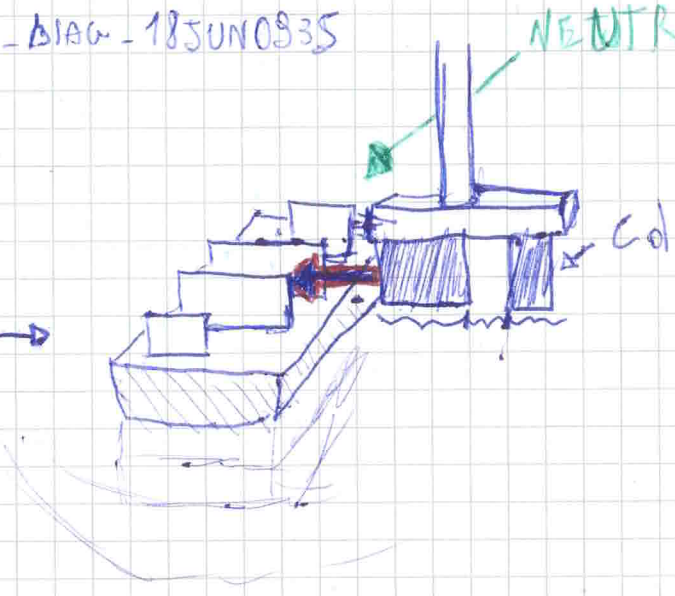
ROCKING_17JUN2044.INF
IFG1_6P30S@17JUN2048.INF (BLOCK 1)
Changed file names to −B1.INF to indicate the blocked path

18.06

Diagonal scan shows asymmetry among path intensities. → ROBOT_DIAG_18JUN0935

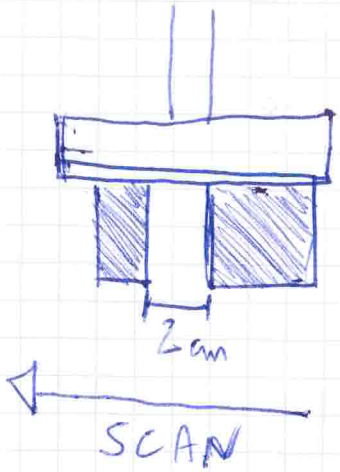


DIAGONAL SCAN →



We inverted the cadmium sheets order to check if they're the problem. The slit between sheets is smaller now.

NEW Cd CONF.



APERTURE SETTINGS : $Z_A = 15.00$, $Y_A = 19.00$

Measurement shows same asymmetry, we try different aperture position.

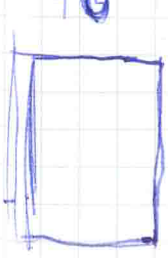
ROBOT-DIAG-18JUN1104.INF

$Z_A = 20$; ROBOT-DIAG_PATH-2-1-3_18JUN1131.INF

Same asymmetry

$Z_A = 10$: ROBOT_DIAG_PATH_2_1_3 18JUN1208.INF

Path 1 and 3 show similar intensities, path 2 still too high. We make an intensity scan for each path using the camera hoping to find an area with equal intensities. The aperture is enlarged, IFG is performed to ensure blocking.

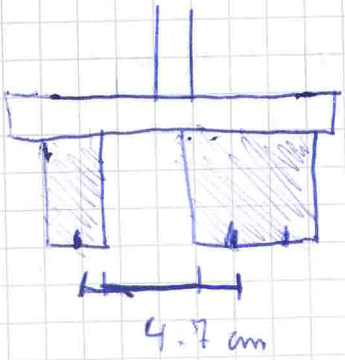


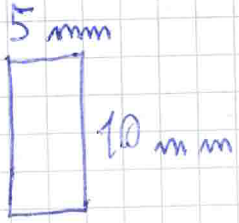
SINGLE IMAGE 1800s_18JUN1304.INF (BL 1,2)
IFG2_3P5s_18JUN1334.INF

SINGLE IMAGE 1800s_18JUN1645.INF (BL 2,3)
IFG1-3P5S_18JUN1515.INF

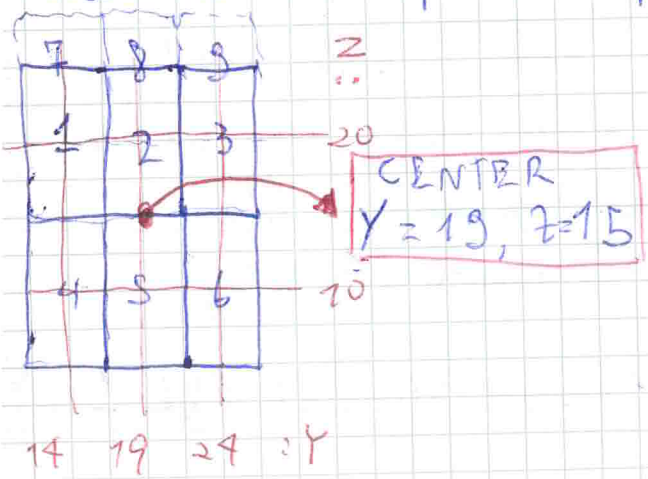
SINGLE_IMAGE 1800s_18JUN1539.INF (BL 1,3)
IFG

NEW Col CONF (LARGER SLIT) + SMALLER APERTURE



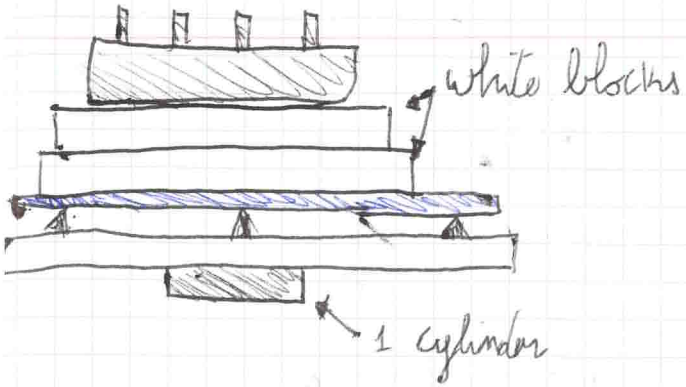


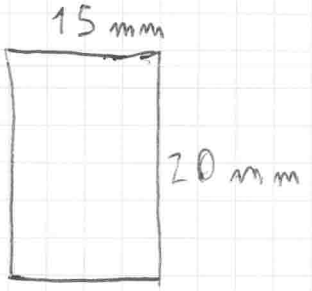
We scan 6 aperture positions



The relative path intensities are dependent on aperture position, the ~~contrast~~ scans are in the file:
ROBOT_DIAG_PATH_2_1_3_ALL_POS.INF

Interferogram run overnight blocking path 3 show contrast dependence on aperture position. The best contrast is ~56%, not good enough. We go back to previous configuration from 16.06, removed one cylinder.





APERTURE

TILT

P	0+H+AUX MAX	FWHM	
-0.85	10847	0.000842	
-0.9	12685	0.000672	
-0.95	13611	0.000612	← BEST!
-1.0	13487	0.000638	

Very low contrast, repeat tilt calibration using AUX detector
Same result. Move interferometer again, test tilt
P = -1 MAX = 2017 FWHM = 0.00040 ✓

ifg2_3p120s_19Jun2323.tif
:
20Jun0845

locally up to 75%
but strong phase stripes

Ph Sh 2 turned upside down

ifg2_3p120s_20Jun0947.tif same phase gradient, → Ph.Sh. ok

Low contrast in big loop ~ 25-30%, we try different interferometer positions.

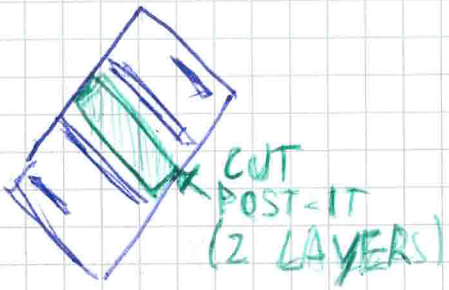
- air cond. not working
- direct beam was not blocked

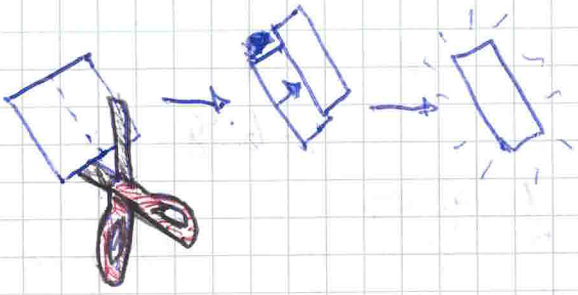
23.6. 8:30 IFM newly set up

S	FWHM$_{sum}$	in 2s	FWHM$_{max}$	in 2s
-3.0	0,00056	8601	0,00043	3465

ifg1_3p120s_233um854

Air conditioning improved the contrast of ~10%, we try pieces of paper (POST-IT) under the IFM





Air conditioning keeps stopping, extremely low contrast (~10%)
was in Standby, later: triac error

24.6.25 Lauda electronics changed

25.6. Lauda stopped cooling without any error → restarted
refilled ~2,5 l water "
128 Error " TRIACS don't break
Restart

MAGNET 2 → TOP OF C2 SHEET

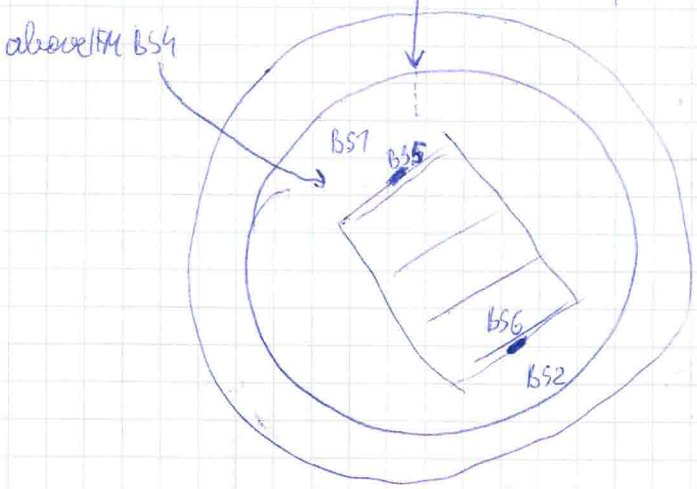
MAGNET 1 → THERMAL WALL
↳ records if inner door is open or closed

Temp. sensors BS1 ... BS6 calibrated in Cu block

BS7: Floor below Sicherungshalter
BS8: Top of thermal house

BS1 should be warmer by 0,017
2 0,001
5 0,01
6 0,001

BS internal calibr. unchanged
instead offset feature in LabView
BS-read-share.vi

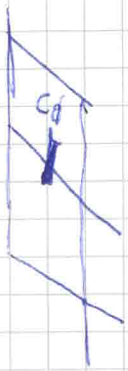


We try without air conditioning, locking peak is a bit broader

p_1	MAX(AUX)	FWHM(AUX)
-2.85	3756	0.00043
-2.80	3073	0.00052
-2.90	3807	0.00042
-2.95	3232	0.00048
-2.90	3984	0.000415 ✓
-2.85	3725	0.00042

ifg1_3p120s_1836ff.inf

very variable contrast, strong peak drifts



ok ifg2_26Jun0215

ifg2 26Jun0436

ifg1 26Jun0546 25%

ifg2 26Jun0657 28%

ifg1_26Jun1010 27%

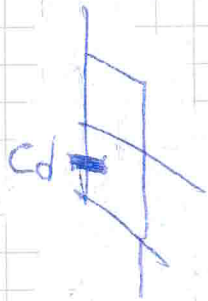
IFM-Box closed with alu plate instead of plexi

Aluminum plate doesn't improve temperature homogeneity, it is removed.

We measure 4 different loops

IFG2_3P120S_26JUN1112.INF 40%

IFG1_3P360S_26JUN1233 46%



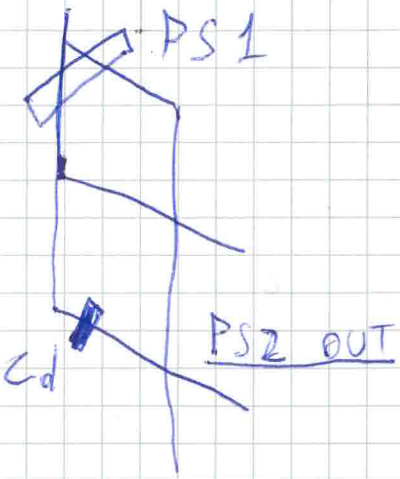
Turn AC on

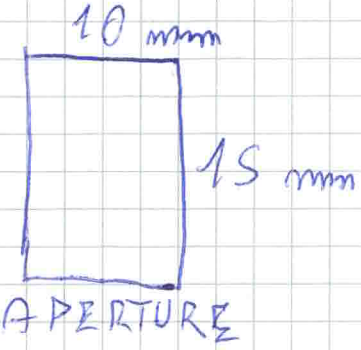
IFG1_3P120S_26JUN1444 ~0%

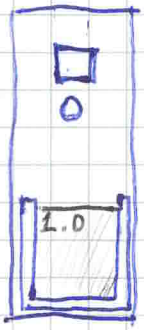
!

27/06

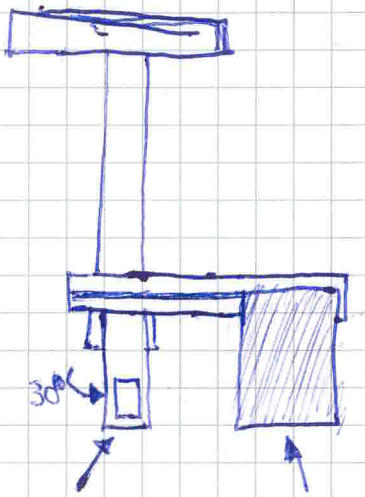
INDIUM FOILS TEST





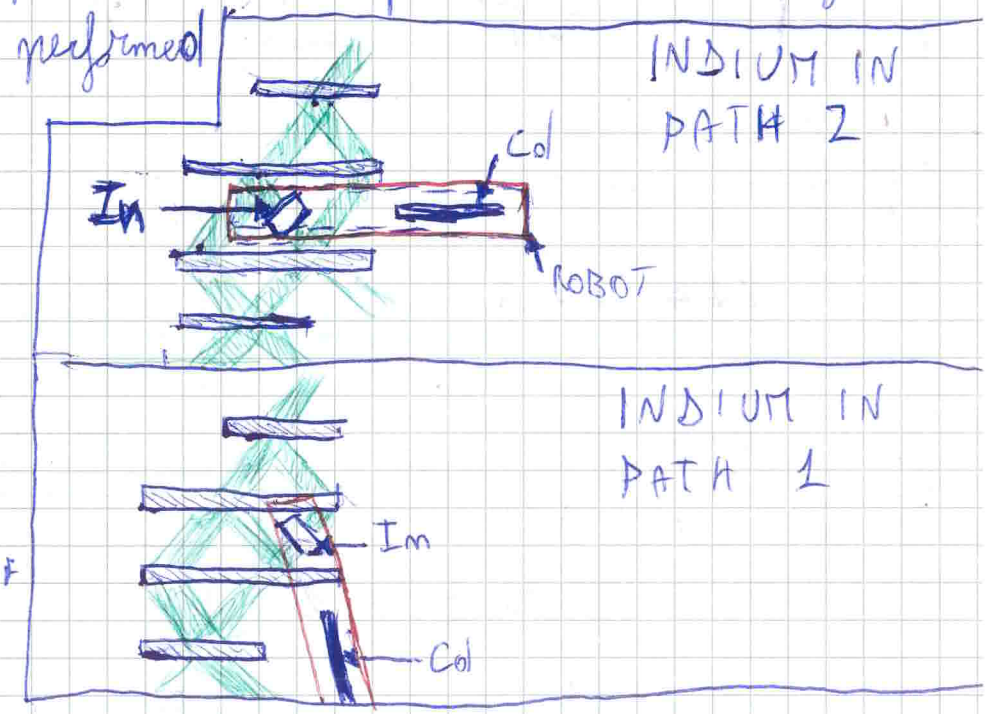


INDIUM 1.0 mm
(PLACED AS IN DRAWING)

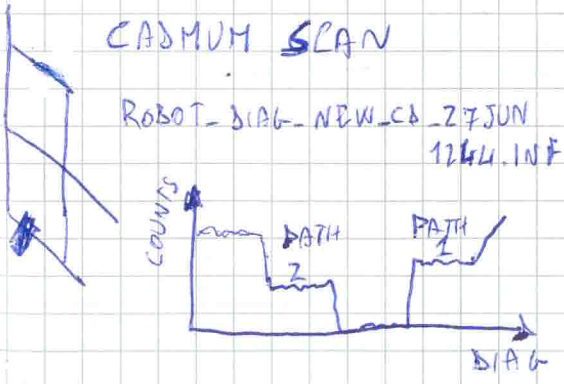


ROBOT

The Indium holder is rotated of 30° to be perpendicular to path 2. Fine timing to be performed

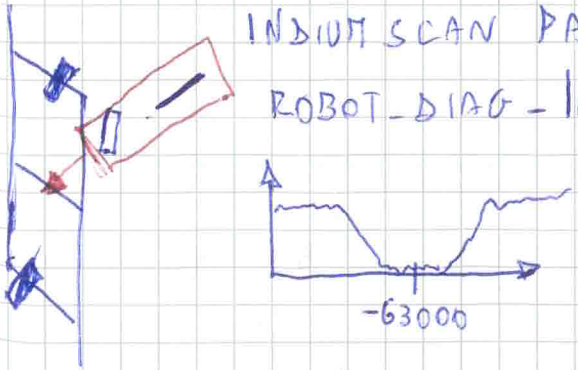


CADMUM SCAN



INDIUM SCAN PATH 2

ROBOT_DIAG_IN_PATH2_27JUN 1539.INF



Angular scan

ROBOT_ROT_BIG_PATH2_27JUN 1550.INF

No difference for the angle ± 10°.

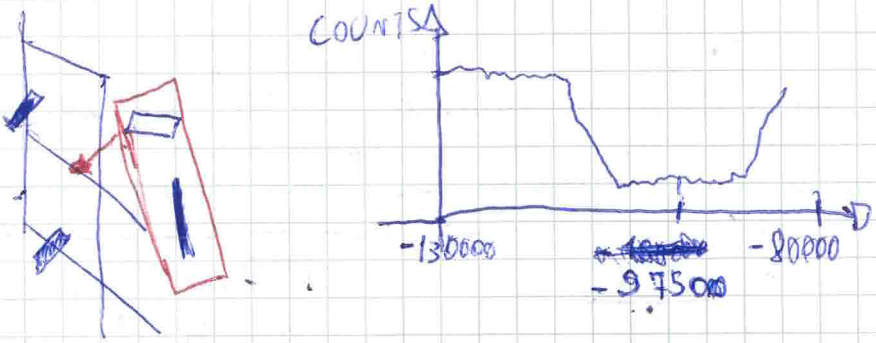
COUNTS

174

INDIUM IN (30s)		INDIUM OUT (30s)	
O = 6009	$\frac{O}{H} = 1,40$	O = 13322	$\frac{O}{H} = 1,37$
H = 4282		H = 9743	
AUX = 12429		AUX = 27726	

INDIUM SCAN PATH 1 (0.5 mm)

ROBOT_DIAG_IN_PATH_1_27JUN1754.INF



COUNTS

INDIUM IN (30s)	INDIUM OUT (30s)
O = 4328	O = 9615
H = 3873	H = 8849
AUX = 11726	AUX = 28549

ABSORPTION ~ 65%

CADMIUM SCAN : ROBOT_DIAG-NEW-CD_27JUN2033.INF

Almost knocked off interferometer, it seems there was no damage.

28.06

SCRIPTS

robot_dig_new_Cd.sc
- ROBOT Z OUT
- ROBOT ROT BIG 90° (⊥ to IFM)
- ROBOT Z IN INDIUM (HEIGHT WITH INDIUM HOLDER AND CADMIUM IN)
- CADMIUM SCAN (BLOCK 2 → BLOCK 1)

move_Indium_path_1.sc
- ROBOT Z OUT
- ROBOT DIAGONAL TO PATH 1 (INDIUM)
- ROBOT ROT BIG TO 150° (⊥ TO BEAM)
- ROBOT Z IN INDIUM

move_Indium_path_2.sc
- ROBOT Z OUT
- ROBOT ROT BIG TO 90° (IN. ⊥ TO BEAM)
- ROBOT DIAGONAL TO PATH 2 (INDIUM)
- ROBOT Z IN INDIUM

block_path_1.sc (2)
- ROBOT Z OUT
- ROBOT ROT BIG TO 90°
- ROBOT DIAG CADMIUM TO PATH 1 (or 2)
- ROBOT Z IN INDIUM

From 27.06 at 21:25 to 28.06 at 10:40 interferograms with camera (SCRIPT: CYCLE19 > EXP_3-16-19_SCRIPT INDIUM.TXT)

MEASUREMENTS: ifg 1 _ 3P 360s _ IN_1p0 _ 1 _ 27JUN2133

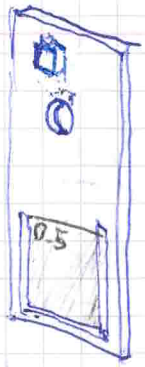
(1: PHASE SHIFTER; 3P 360s: PERIOD, TIME POINT; IN_1p0: INDIUM 1.0 mm; 1: PATH WITH INDIUM)

New Mathematica file: cam_ifg_indium.nb

The Indium foil of 1.0 mm absorbs ~ 65% of the beam, it doesn't show significant phase gradients. The contrast is lowered of ~ 5%.

	P1	MAX (0+H+AUX)	FWHM
TILT ADJUSTED, NEW VALUE:	-2.95	7248	0.00054
OLD VALUE:	-2.9	6413	0.00061

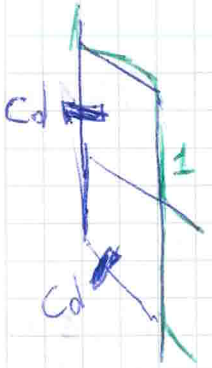
176



INDIUM : 0.5 mm

INDIUM IN (30s)
O = 9087
H = 6664
AUX = 18797

INDIUM OUT (30s)
O = 13419
H = 10049
AUX = 27723



O = 17171
H = 4039
AUX = 23146

O = 10800
H = 10231
AUX = 34395

ABSORPTION ~ 32.8%

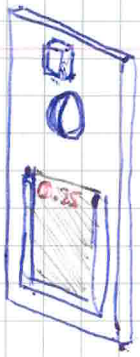
START CAMERA SCAN 28.06 AT 16:04

~~END~~

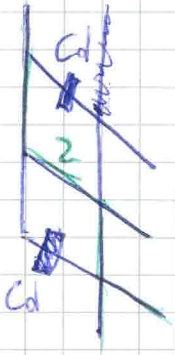
29.06

~~Found~~ error message*, measurements are ok.
~~Run~~ IFGs without camera, the ~~camera~~ measurements show almost no difference in contrast $\Delta C \sim 1\%$.
IFG without camera show $\Delta C \sim 3\%$ for Indium in path 1 and $\Delta C \sim 0\%$ for path 2. ~~Consistent~~ with intensity difference between paths

*The robot says it's not on axis, re-starting the main is



INDIUM 0.25 mm



INDIUM IN (30s)
O = 10651
H = 8217
AUX = 22927

INDIUM OUT (30s)
O = 13138
H = 10059
AUX = 27865

INDIUM IN (30s)
O = 8701
H = 8334
AUX = 28096

INDIUM OUT (30s)
O = 10622
H = 10170
AUX = 34420

ABSORPTION ~ 18.4%

START LONG SCAN CAMERA IFG + NORMAL IFG
29.06 AT 15:50.

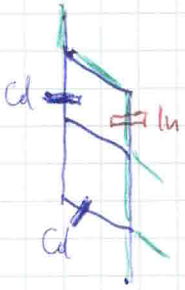
- Went inside for a brief moment, ~~probably~~ the first point ~~was lost~~. Measurement restarted at 16:22

1.7.25

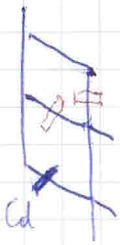
178

Indium 0.1 mm

Indium IN (30s)	Indium OUT (30s)
O = 12228	O = 13112
H = 9303	H = 10050
Aux = 27382	Aux = 29458



Indium IN (30s)	Indium OUT (30s)
O = 10224	O = 10878
H = 9779	H = 10370
Aux = 31702	Aux = 34547



In. in path 1:

ifg1-3p-120s-In0p1-1_01Jul1006.fit
360 1118.fit

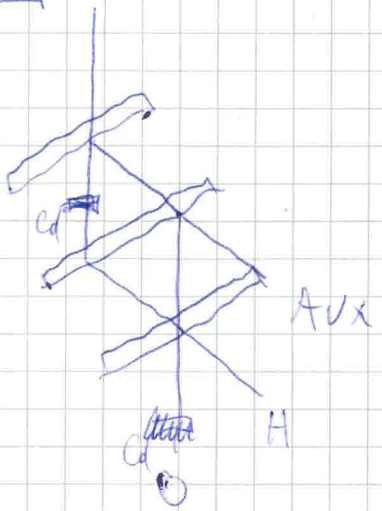
In. in path 2:

ifg1-3p120s-In0p1-2-01Jul1435.fit
360 1547.fit

Abbruch des Experiments wegen schlechtem Kontrast wegen zu großer Höhe und Ausfall des Laptops VC 7000

TEST 3461 Test of new crystal stage (single small stage)

10 × 15 pol. stage 1 mit best IFM



	FWHM SUM O+H+Aux	in 2s	
3			
10.20	0,000618	5662	
10.22	593	5779	
10.24	609	5625	coding Part: off
10.26	666	5180	
10.28	726	4983	0,0005° steps
10.22	607	5687	R2_03xd1431

0,00025° steps: R2-03xd1446

camera Richtung H

Linien Blue = ~~60~~ = H 55 → 37 38mm Versatz

~~22~~ = Aux 18

~~44~~ = MiMe 36.5

→ Nu. Aux justiert

camera Richtung O IN = 92 Linien Blue

Interferogram funktioniert, lokal ~~da~~ bis 35%, schlecht wegen der Hitze (?)

(Läuft ca noch 1 Woche ohne Neutronen weiter)
~~ab~~ 6.7. 13:00

Zwischendurch coding nicht konvergent, erster Punkt zu viele Counts (?)
5.7. 1456 ... 6.7. 2:00 Fit NaN