STFC CZT and AOB

M. Bezak

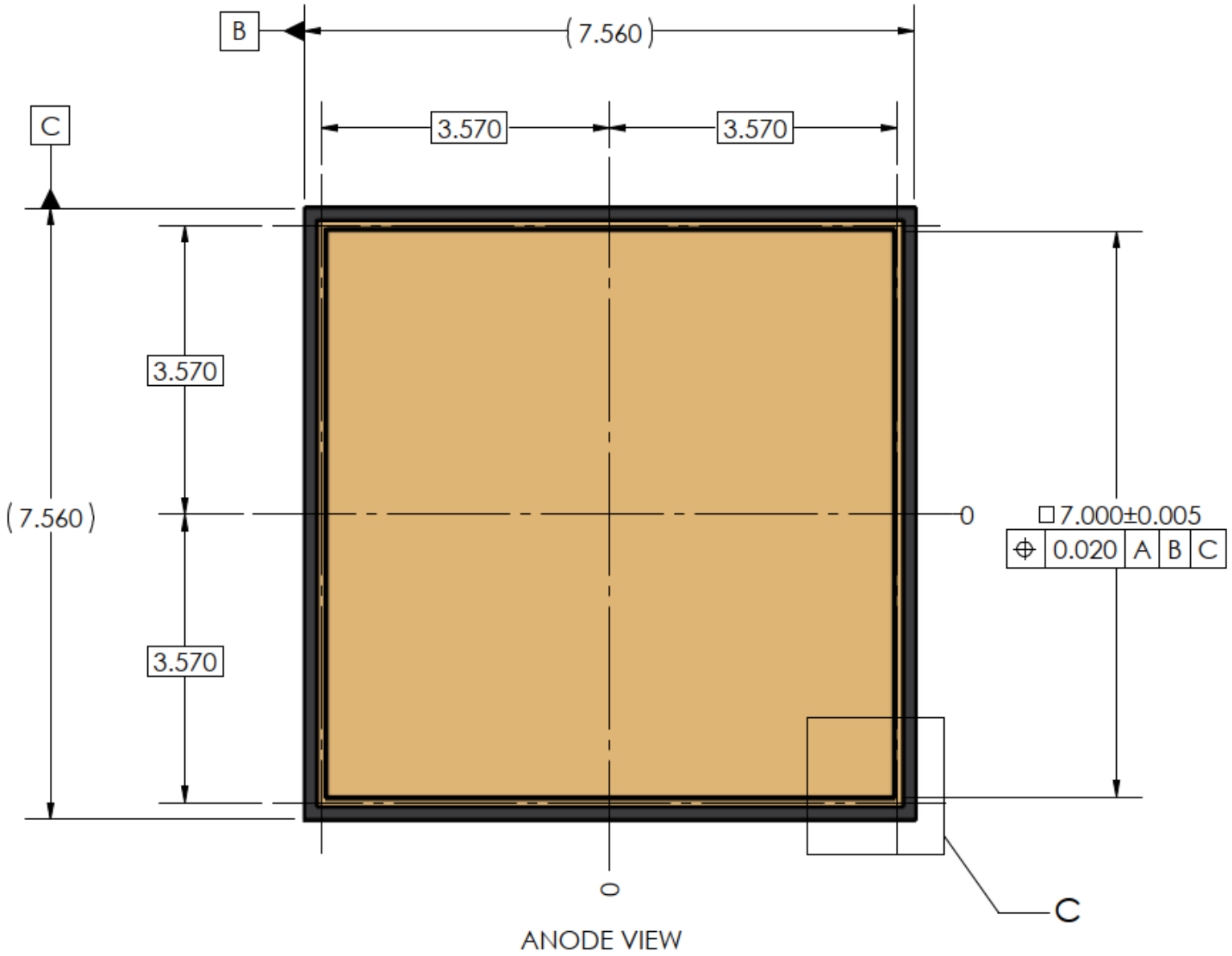
[1] Lappeenranta- Lahti University of Technology,
[2] Helsinki Institute of Physics, University of Helsinki

LUT University

HELSINKI INSTITUTE OF PHYSICS

UNIVERSITY OF HELSINKI

BkP8

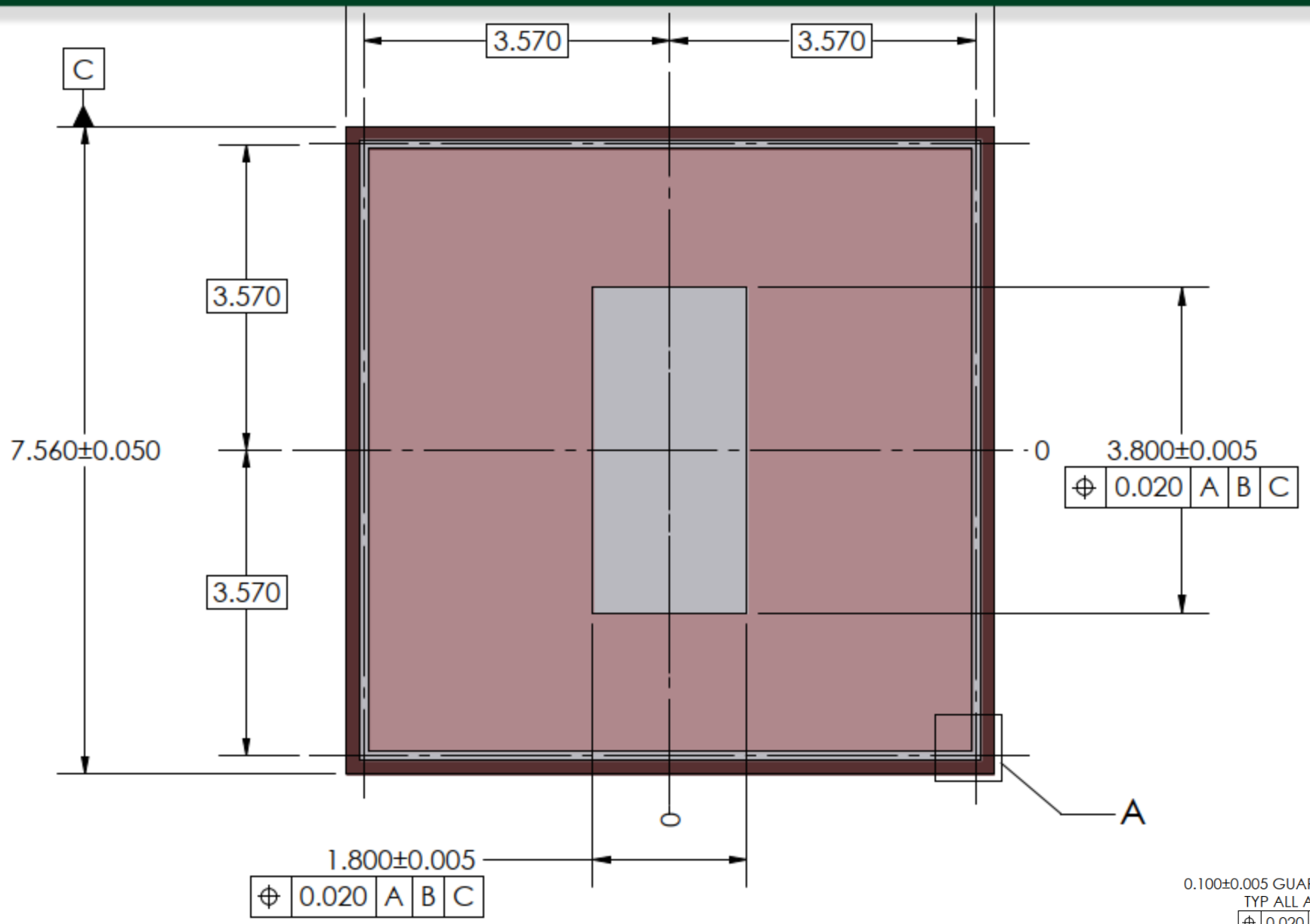


BKP8 HF-CdZnTe Sensors

Electrodes = Pt/CdZnTe/Pt

Thickness = 1.5mm

BkP9



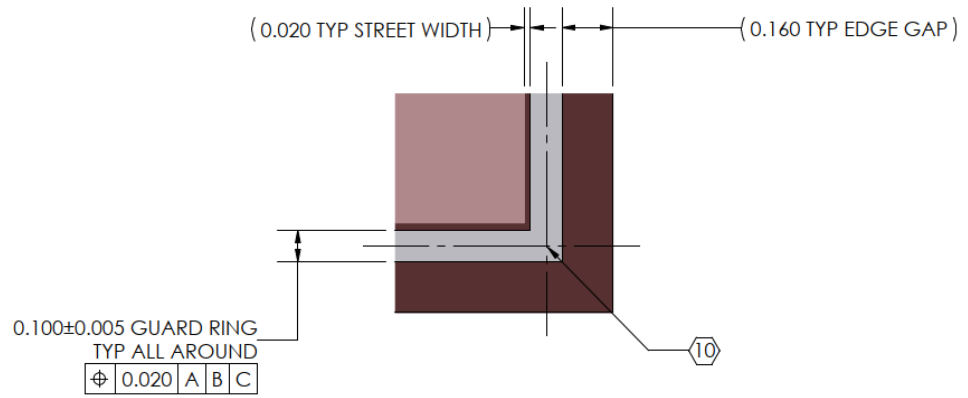
ANODE VIEW

BKP9 HF-CdZnTe Sensors

Electrodes = Pt/CdZnTe/Ti/Au

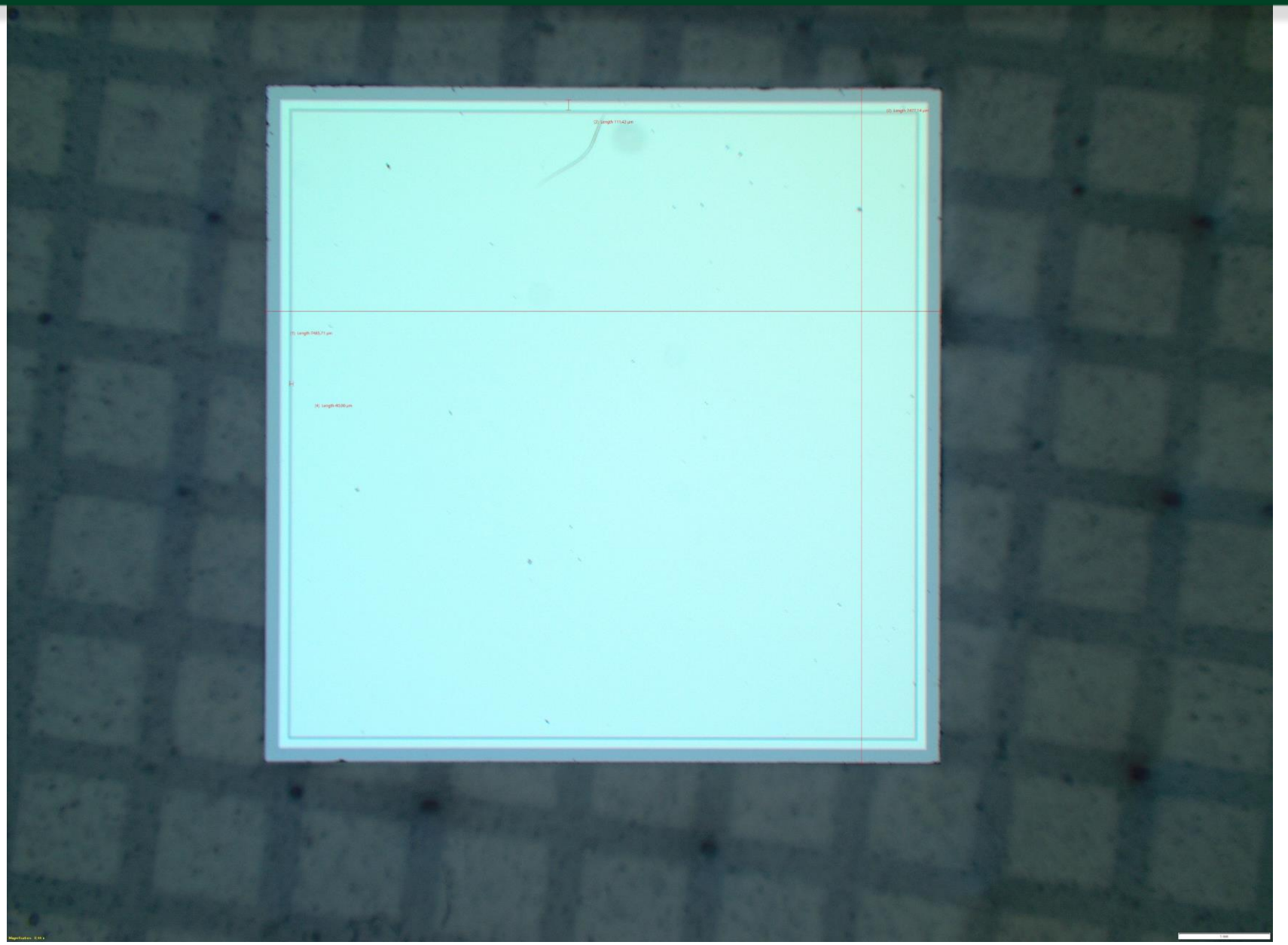
Thickness = 2.0mm

Passivation Layer (red)

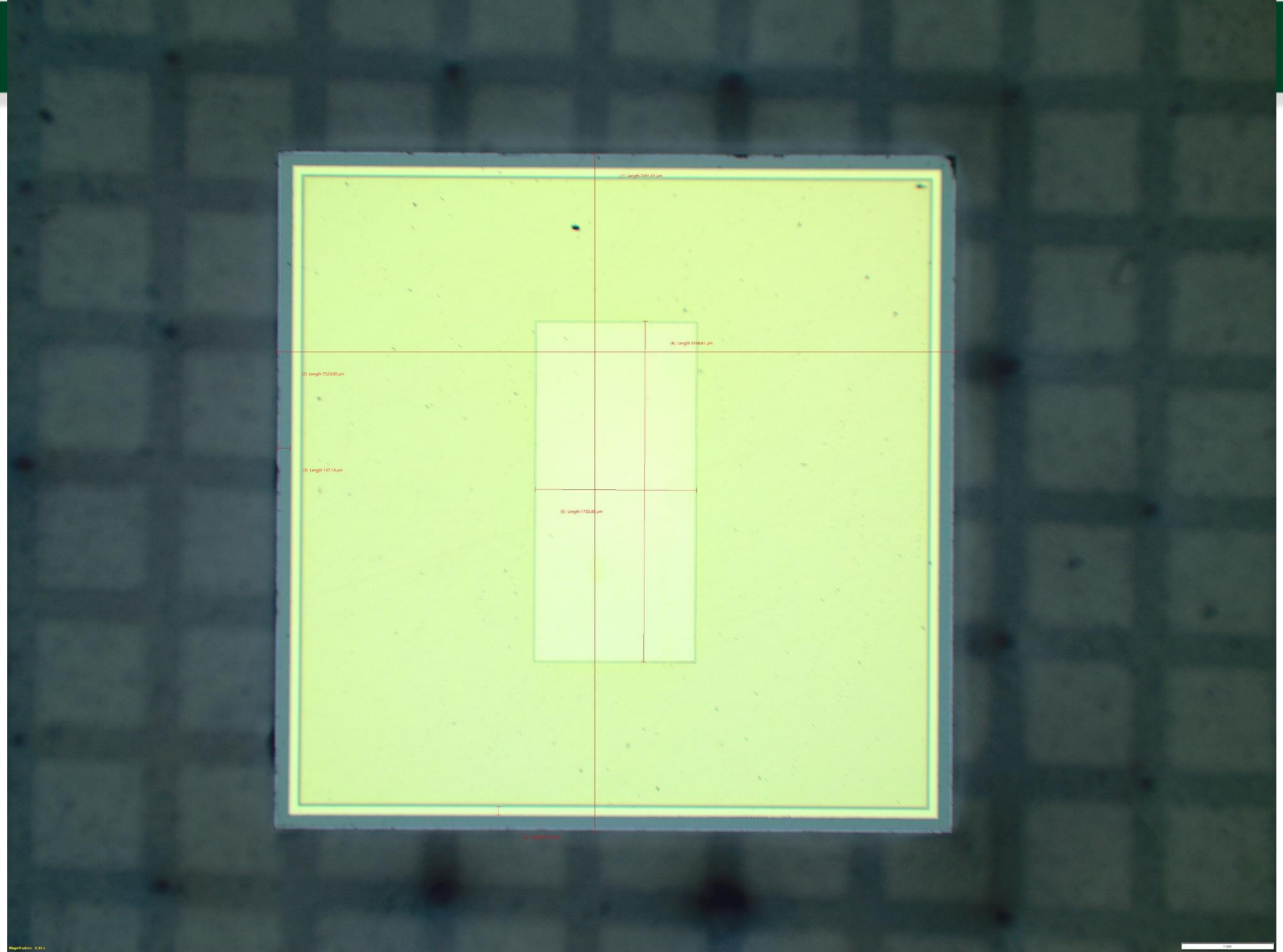


DETAIL A

BkP8



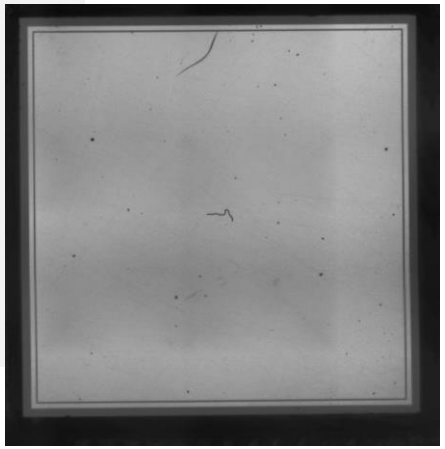
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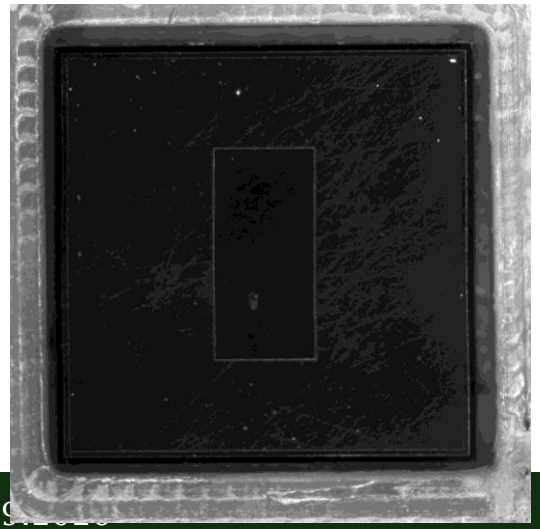


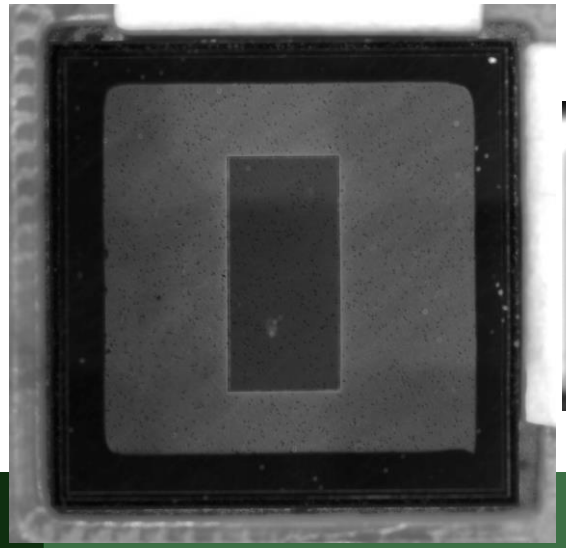
IR Scans

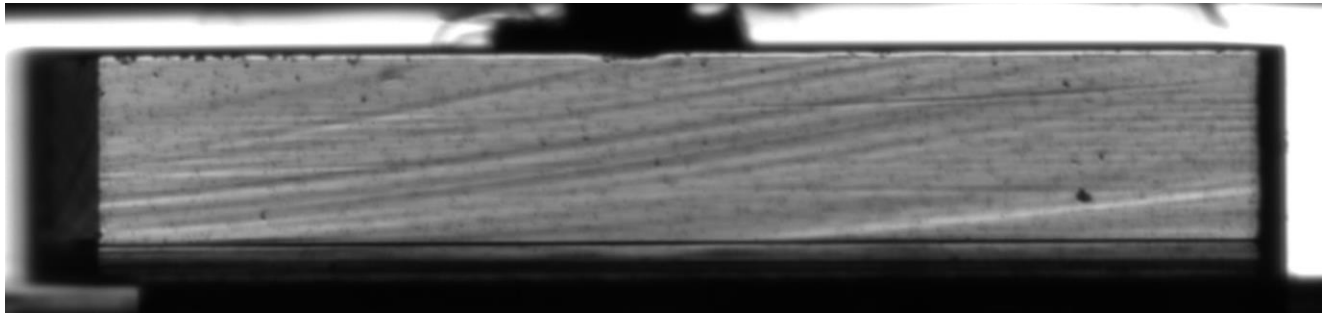
STFC CdZnTe

box	name	scanning	start_date		end_date		dt	settings	XY area[mm]	# XYZ	start_z	comment
STFC CdZnTe	D445262/ / BkP8	inlight/M1/focusing/5Mpix	20.7.2026	16:14	20.7.2026	16:17	0:03	30ms, 10Hz	8x8x1	3x3x1	5.984	delta_move_v_u: -735 delta_move_h_lr: 2 delta_move_BD_h_lr: 1385 delta_move_BD_v_ud: -1 blend_mode: feather feather_power: 6.5
		ringlight/M1/focusing/5Mpix	20.7.	15:47		15:50		30ms, 10Hz	8x8x1	3x3x1	5.984	same, ringlight intensity 6
		950nm/M5	22.7	18:56	23.7.	16:25		600ms,10Hz	6x6x1.5	12x12x40	0.794	
		telecentric/M7	24.7.					500ms,10Hz	6x6x1.5	3x3x40	-13.96	
		telecentric/M3/edge	28.7.					5ms,10Hz	6x6x8	3x3x80	17.069	mouted on holder edge illumination
		telecentric/M7/edge	28.7.					30ms, 10Hz	8x1x8	6x0x80	10.769	
	D448686/ BkP9	inlight M1 focusing	20.7	16:28	20.7	16:35		30ms, 10Hz	8x8x1	3x3x1	5.984	same
		ringlight M1 focusing						30ms, 10Hz	8x8x1	3x3x1	5.984	same
		ringlight + 950nm M1 focusing	21.7	11:08		12:54		150ms,10Hz	8x8x3	3x3x30	6.084	same, but sample was moving
		950nm/M5	23.7.					800ms,10Hz	6x6x1.5	12x12x40	1.333	









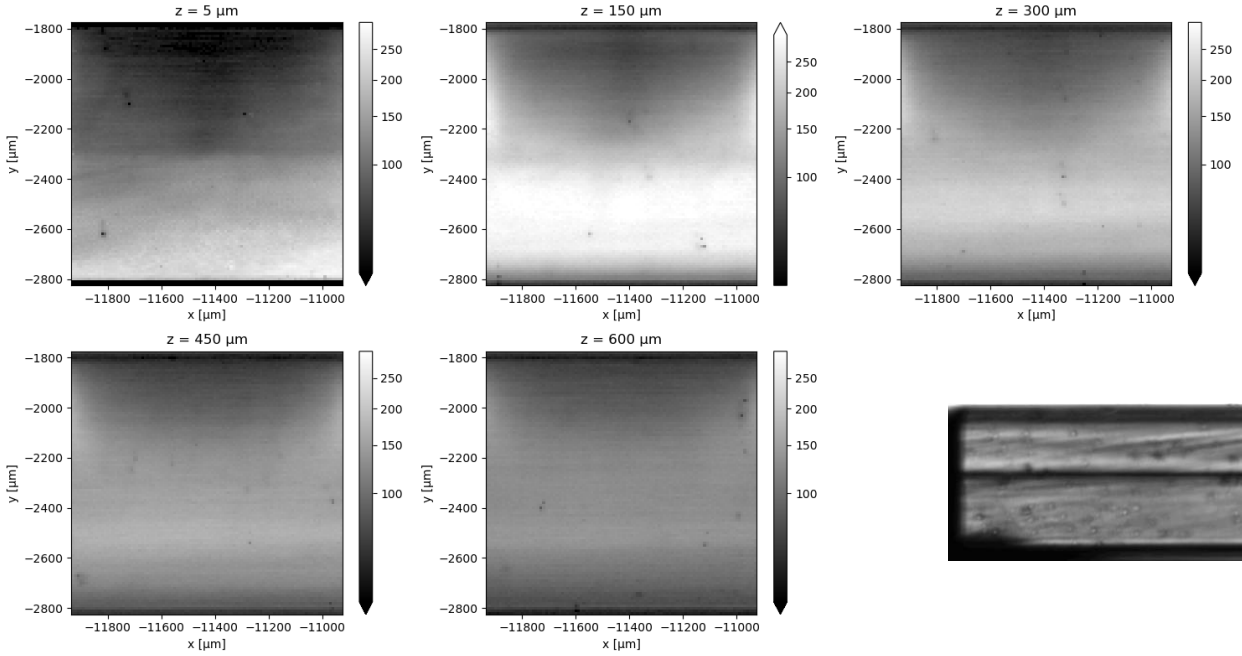
TPA and defects

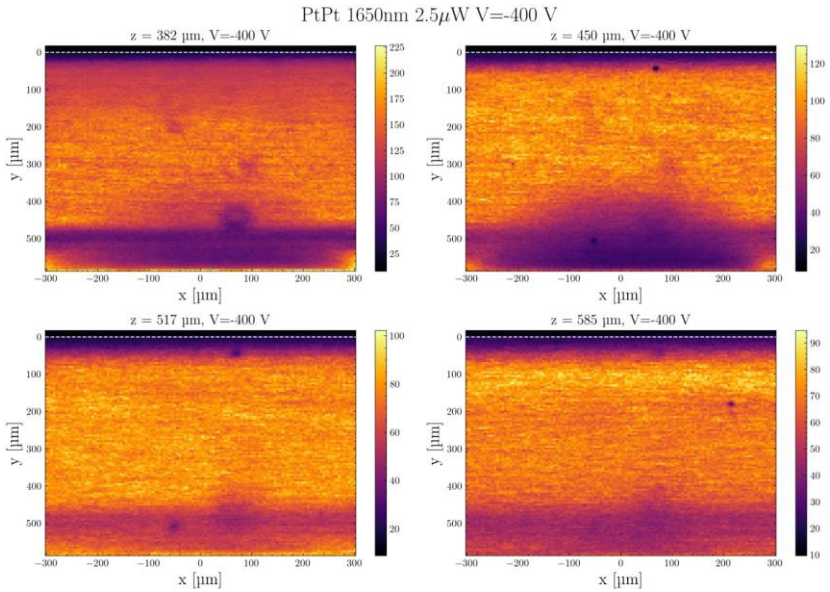
Spatially resolved two-photon transient-current mapping of an extended defect in CdTe

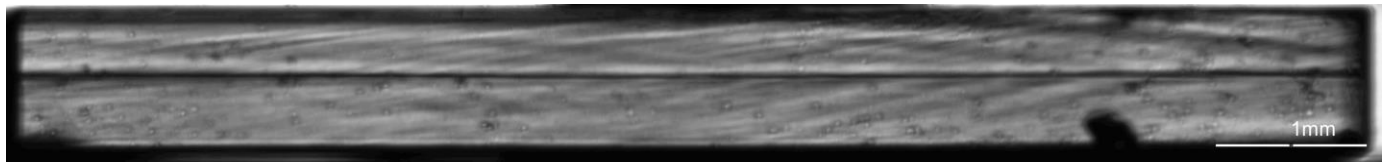
Mihaela Bezak,[1, a)] Mika Väänänen,[1] and Matti Kalliokoski[1]
Helsinki Institute of Physics, University of Helsinki, Helsinki, Finland

(Dated: 12 August 2026)

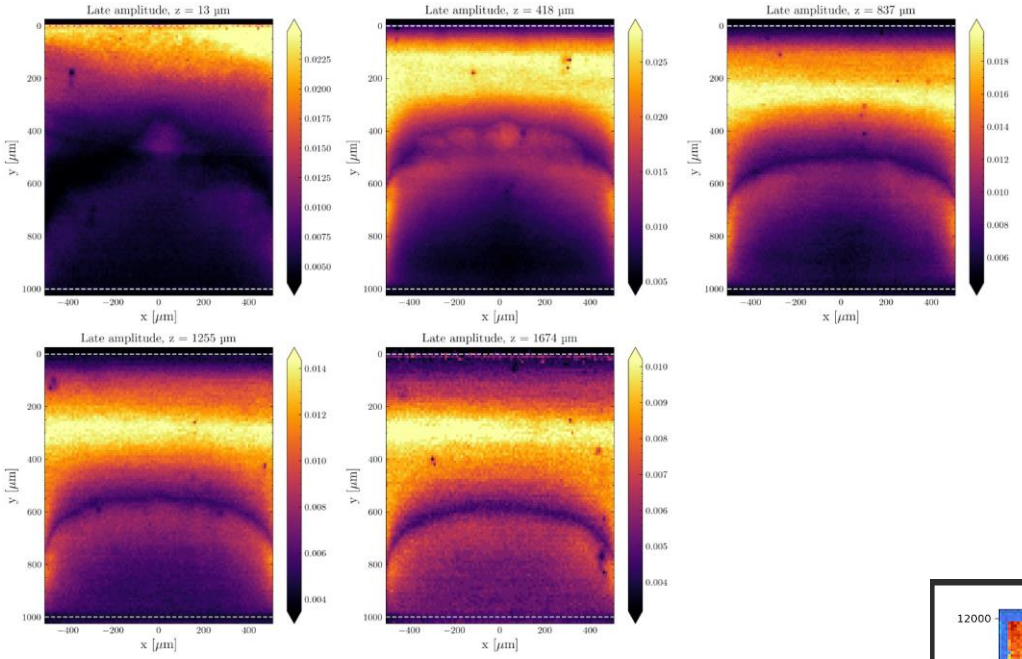
Two-photon excitation at 1650 nm was used to generate charge carriers locally inside a CdTe detector and to map the depth-dependent transient-current response. Most investigated positions exhibited an approximately quadratic dependence on pulse energy over the experimentally valid range. A spatially extended region visible in infrared transmission imaging coincided with reproducible changes in collected charge, pulse amplitude, and waveform shape. The response also depended on bias magnitude and polarity, indicating that the

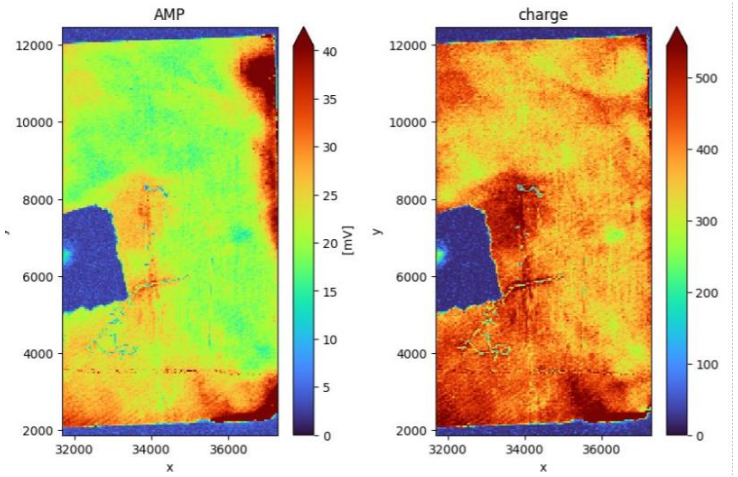


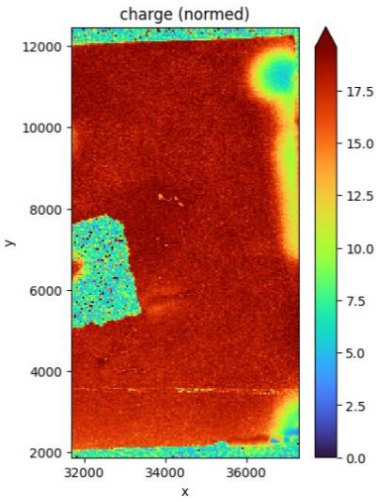




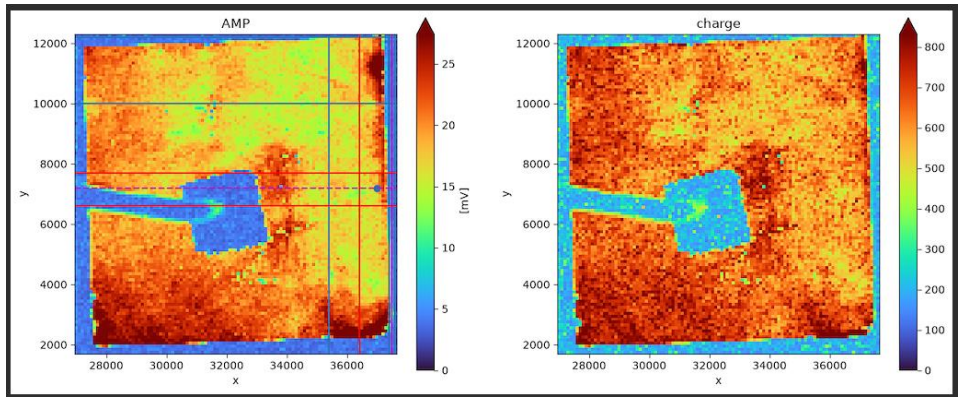
Top illumination

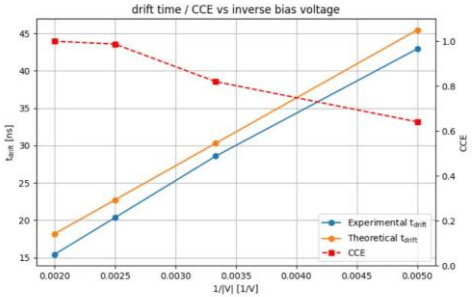




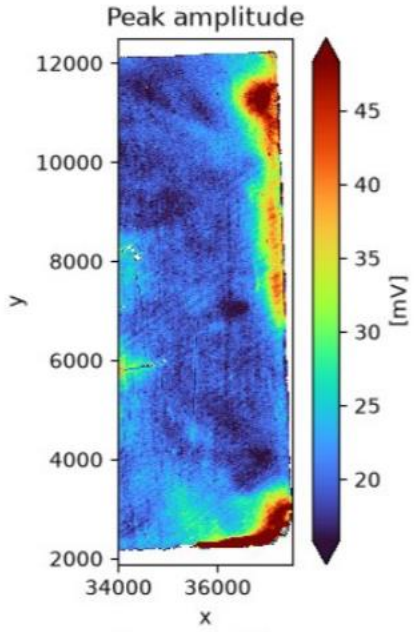


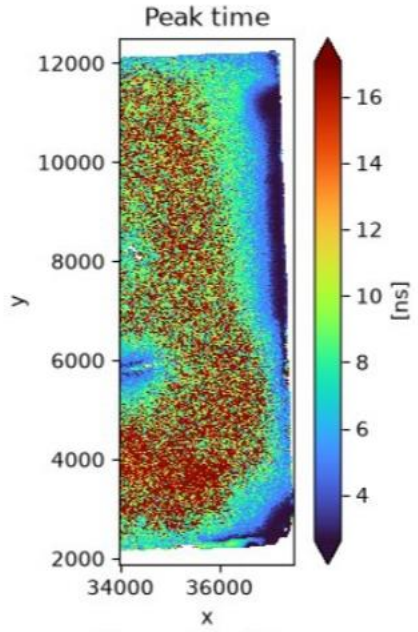
Over 100,200,300,400,500 V bias

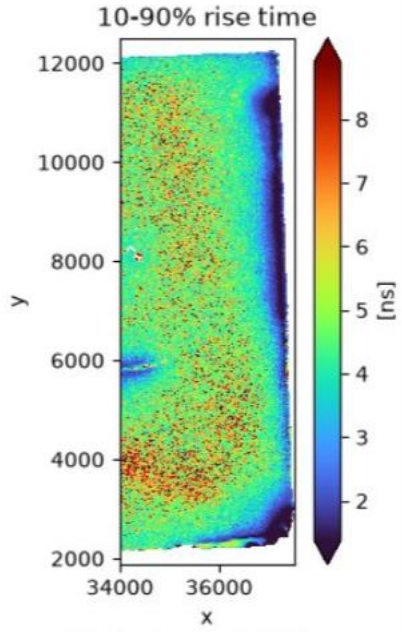


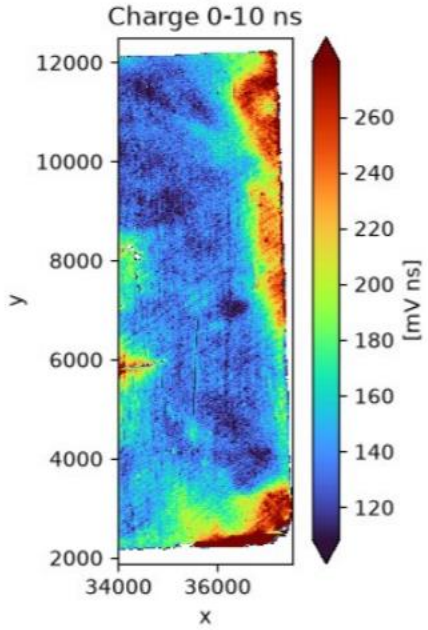


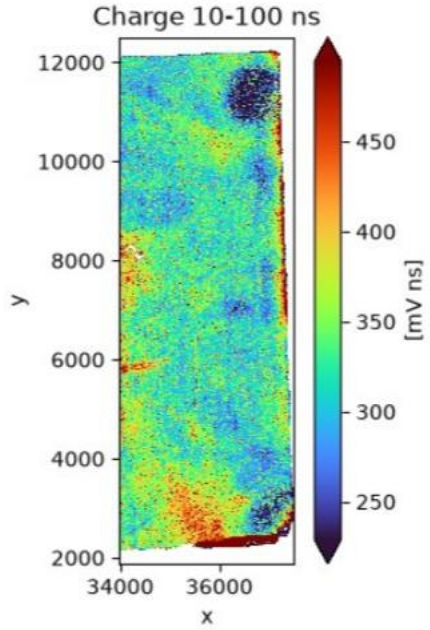
Edge illumination

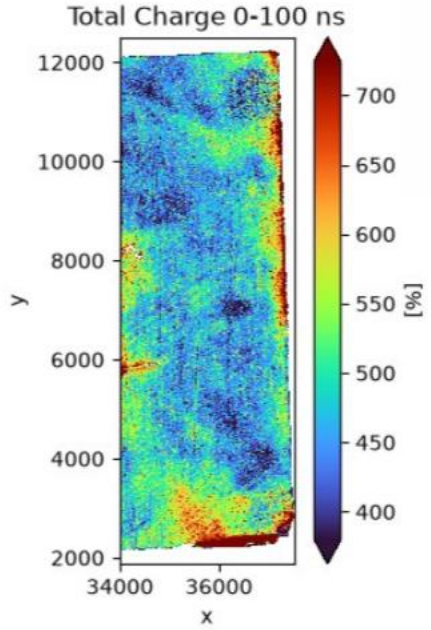

Peak amplitude
y
x
[mV]

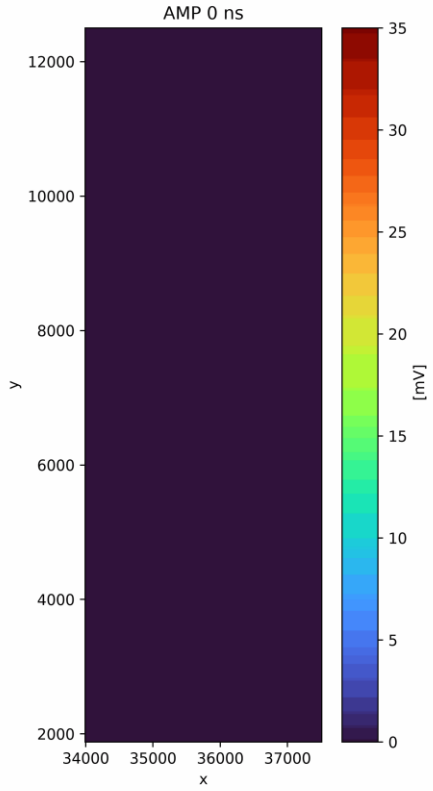

Peak time
y
x
[ns]

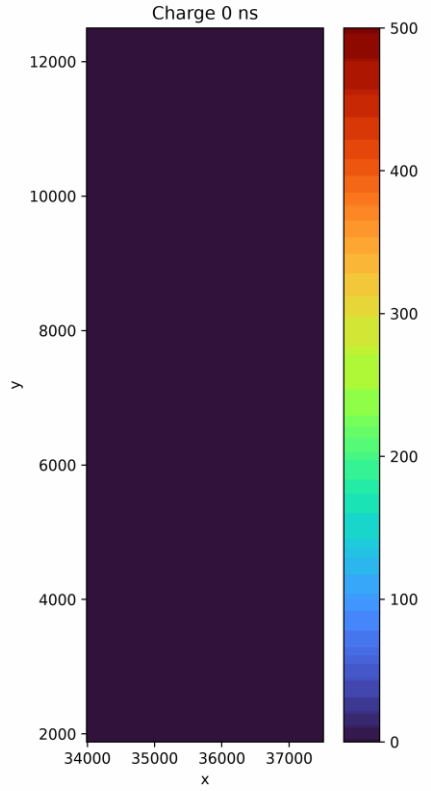

10-90% rise time
y
x
[ns]

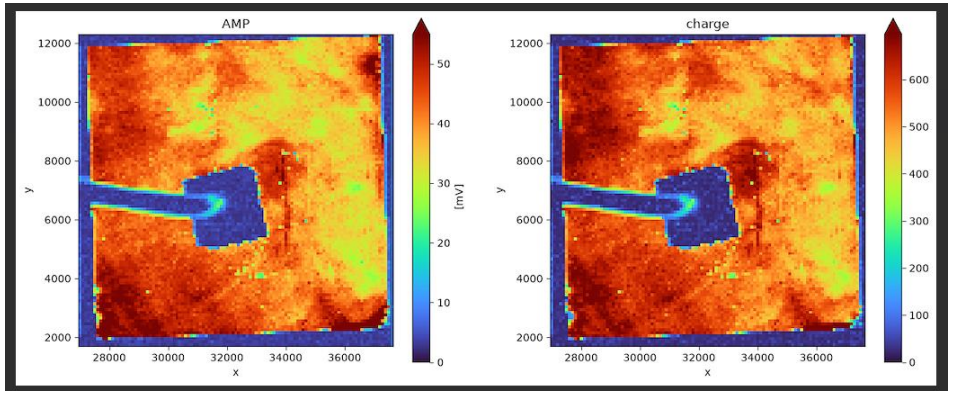

Charge 0-10 ns
y
x
[mV ns]

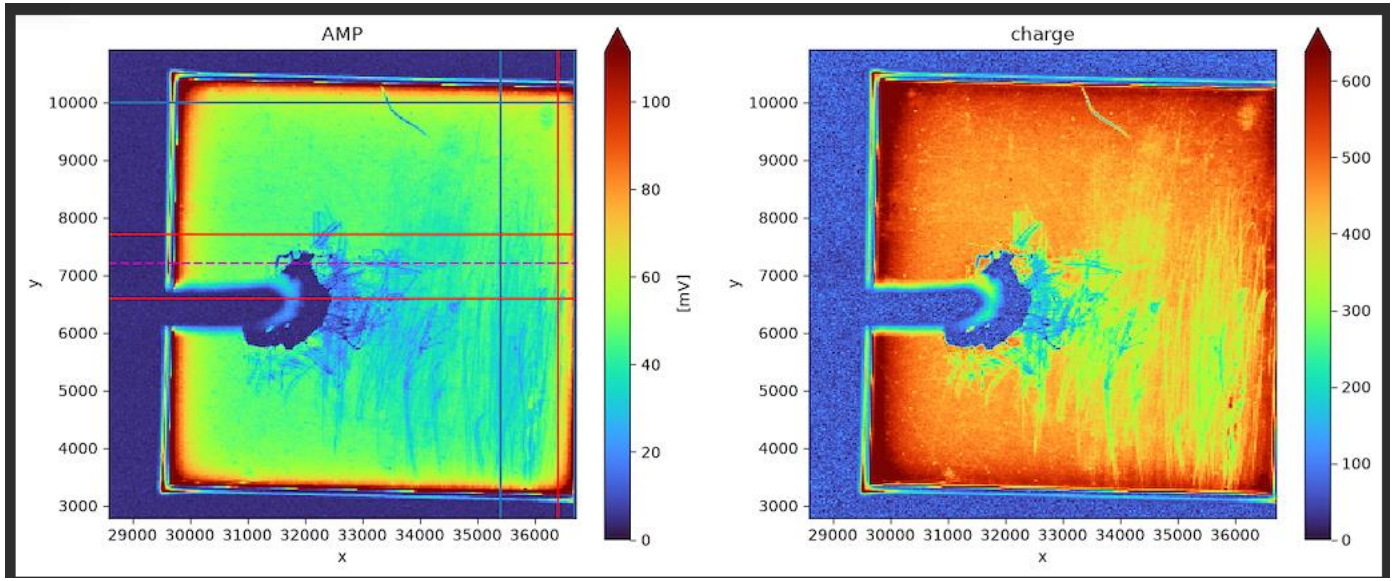

Charge 10-100 ns
y
x
[mV ns]

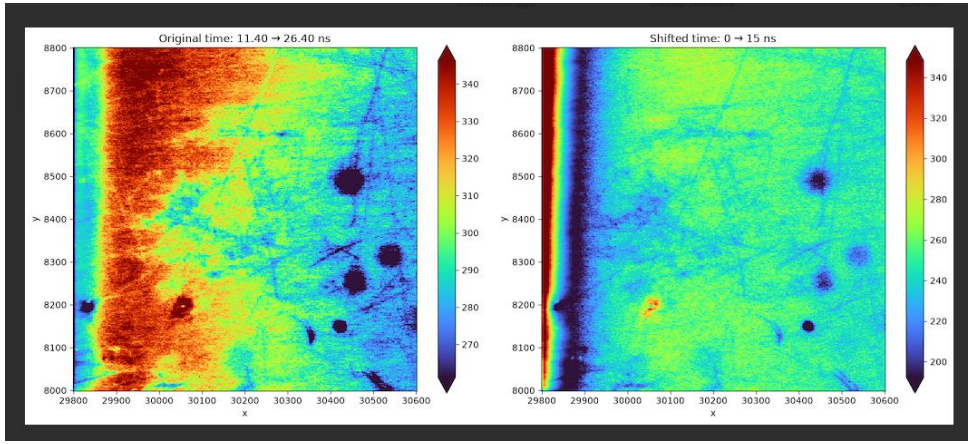

Total Charge 0-100 ns
y
x
[%]


AMP 0 ns
y
x
[mV]


Charge 0 ns
y
x


AMP
charge
x
y
[mV]


AMP
charge
y
x
[mV]
10000
9000
8000
7000
6000
5000
4000
3000
29000 30000 31000 32000 33000 34000 35000 36000
100
80
60
40
20
0
600
500
400
300
200
100
0


Original time: 11.40 → 26.40 ns
Shifted time: 0 → 15 ns
y
x
8800
8700
8600
8500
8400
8300
8200
8100
8000
29800 29900 30000 30100 30200 30300 30400 30500 30600
340
330
320
310
300
290
280
270
340
320
300
280
260
240
220
200

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