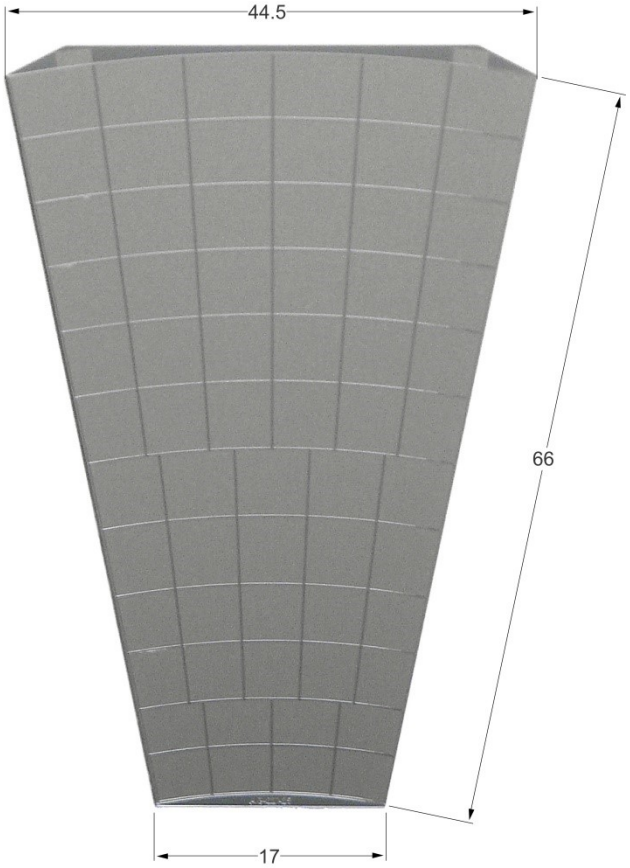
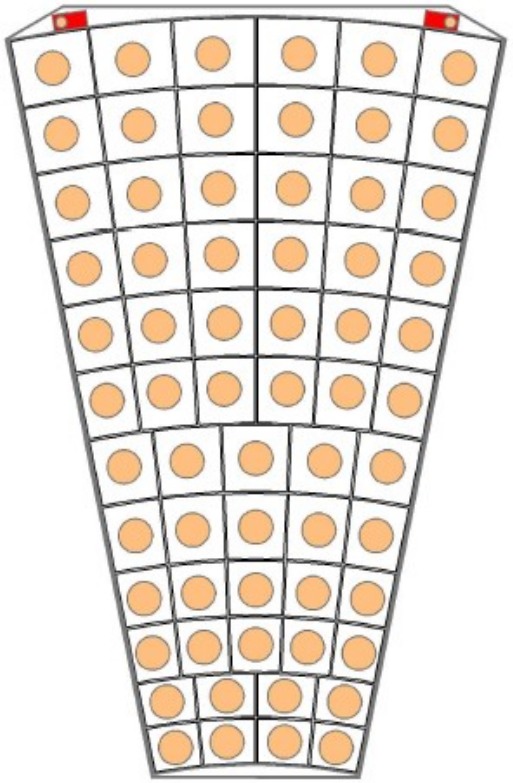
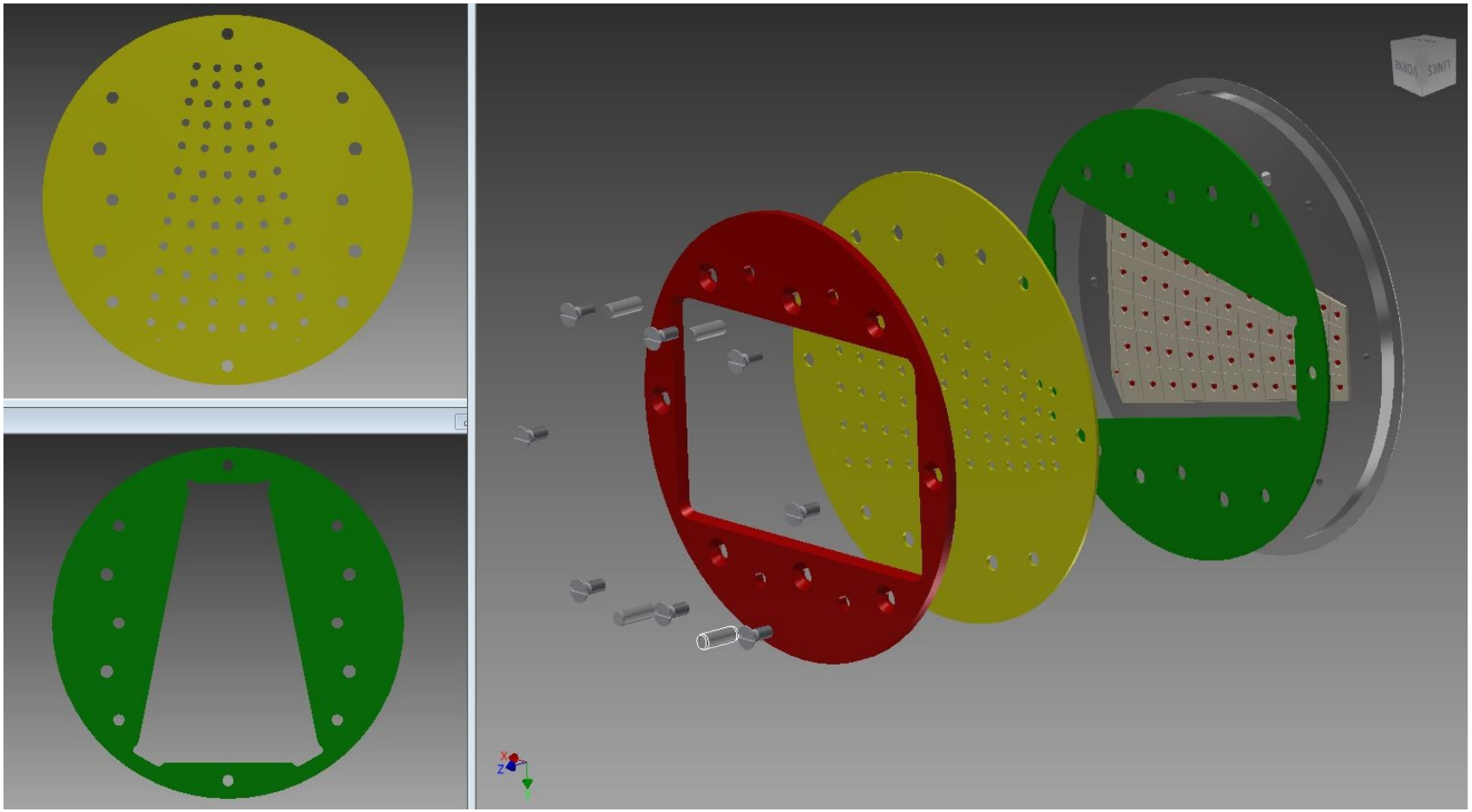
GaAs-2019 plans

Reminder – old sensors, 64 pads + guard ring, metallization – Nickel + Gold contact spots. Thickness 500 µm

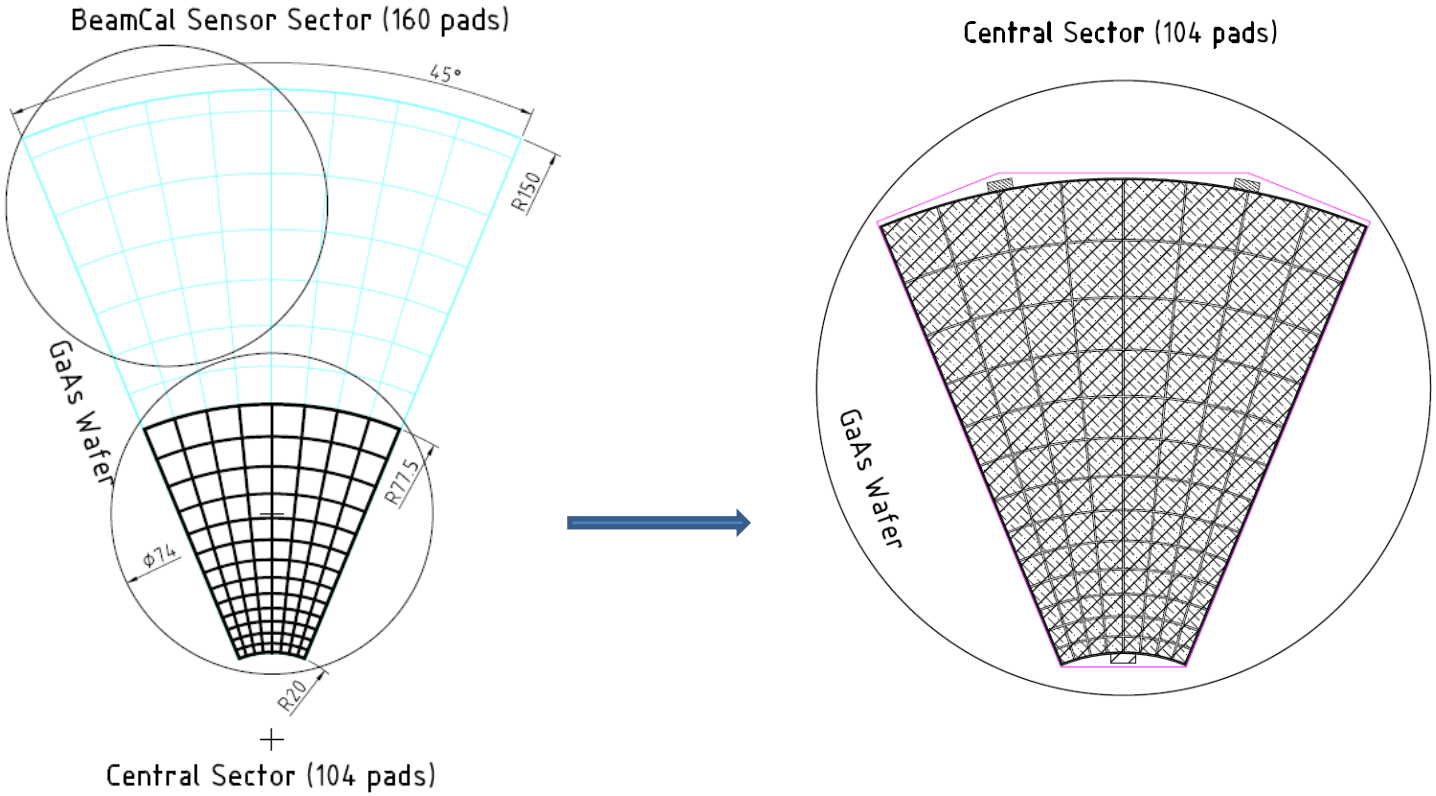


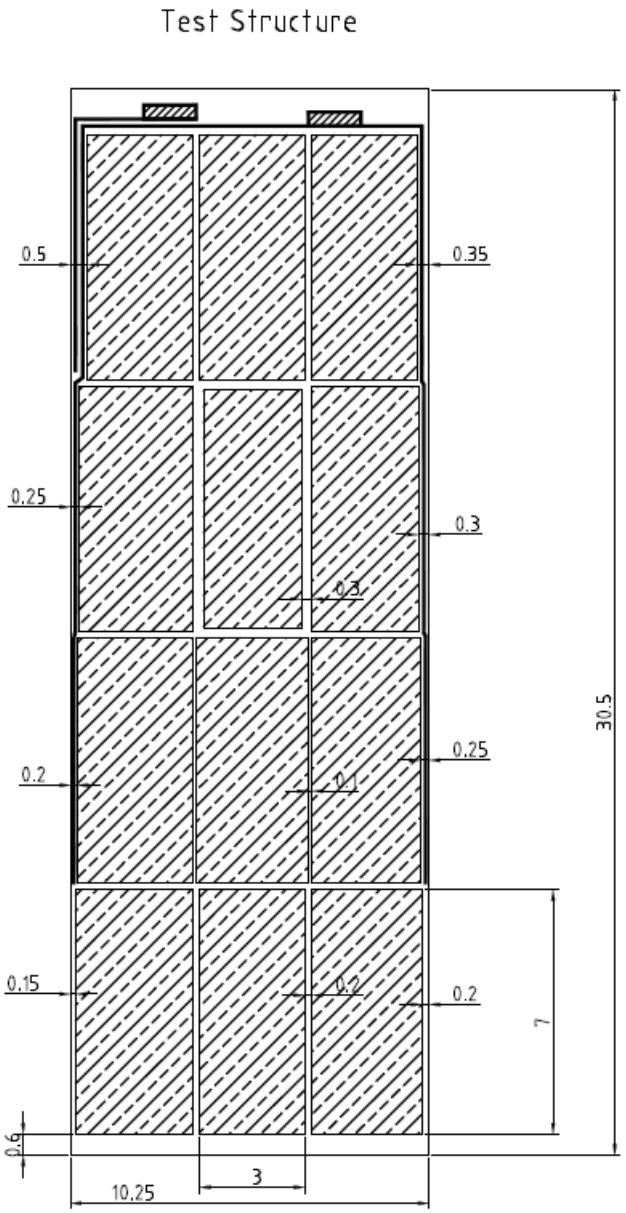


Sputtering mask for gold metallization - 2016



BeamCal proportional segmentation central part prototype TSU 2019

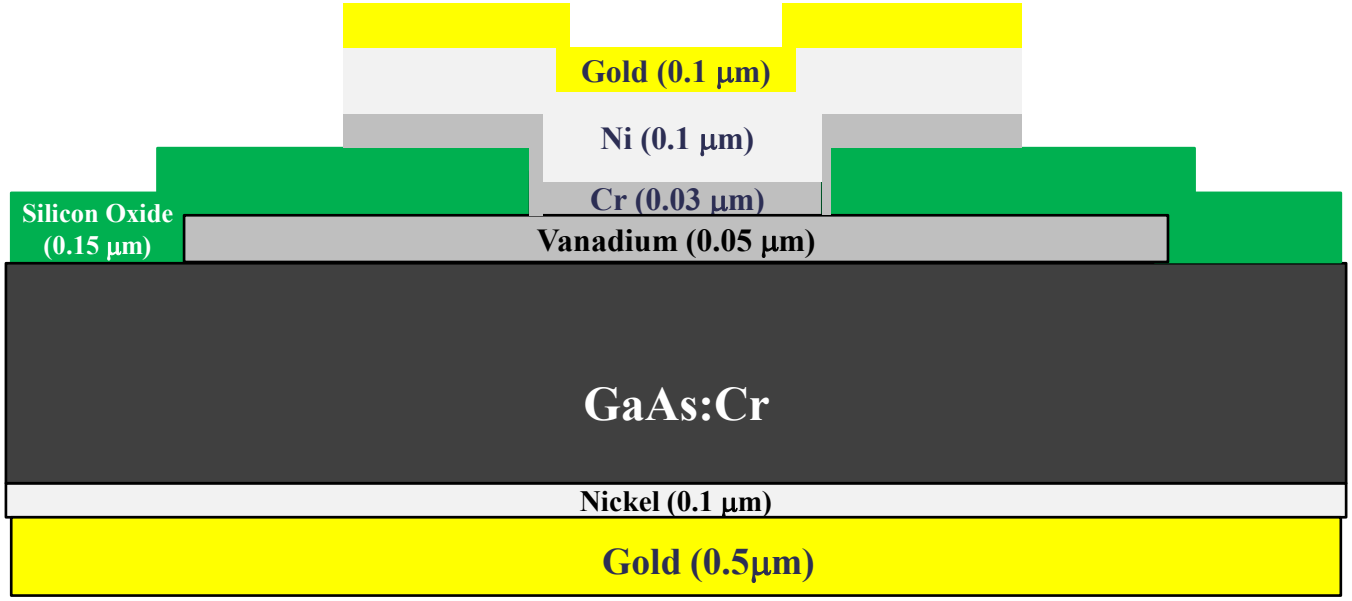




Test Structure
(proposal)

‘2 pm’: standard gaps 100 µm
‘1 pm’: guard ring -cutting edge gap 150 µm
‘12 am’: relaxed edge conditions
‘11 am’: extra guard ring, standard gaps
‘10 am’: small 50 µm gap sensor -guard ring
‘8 am’: both gaps are reduced to 50 µm
‘7 am’: no guard ring, 150 µm gap between pad and sensor cutting edge
‘6 am’: relaxed edge conditions, similar to central pads of the main sector sensor
‘5 am’: no guard ring, 200 µm gap between pad and sensor cutting edge
‘4 am’: guard ring is close to the cutting edge, only 50 µm gap left

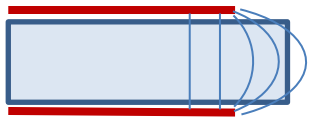
Metallization (TSU proposal)



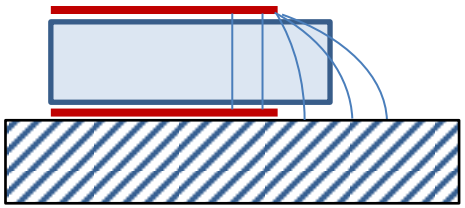
Back side (bottom) looks good for our purposes. Could front side pads be metallized similar way?

Edge leakage tests – 2 versions

Standalone



Probe station



Distribution of electric field depends on environment
(i.e. probe station cold chuck)

Extra spacer