Hardware Meeting

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2026/06/10
UNIVERSITY OF MANCHESTER

SiPMs IV Curves Procedure

See slides here

Optical Simulation

Goal : Modeling the VUV Monochromator to find any unwanted reflexions and how they are affecting our spectrum. If we have a model of them hopefully we can subtract it.

First path taken :

1. Source → Aperture 1 → Mirror → Aperture 2 → Image
2. Scanning mirror
3. Convert mirror to grating

Second path taken :

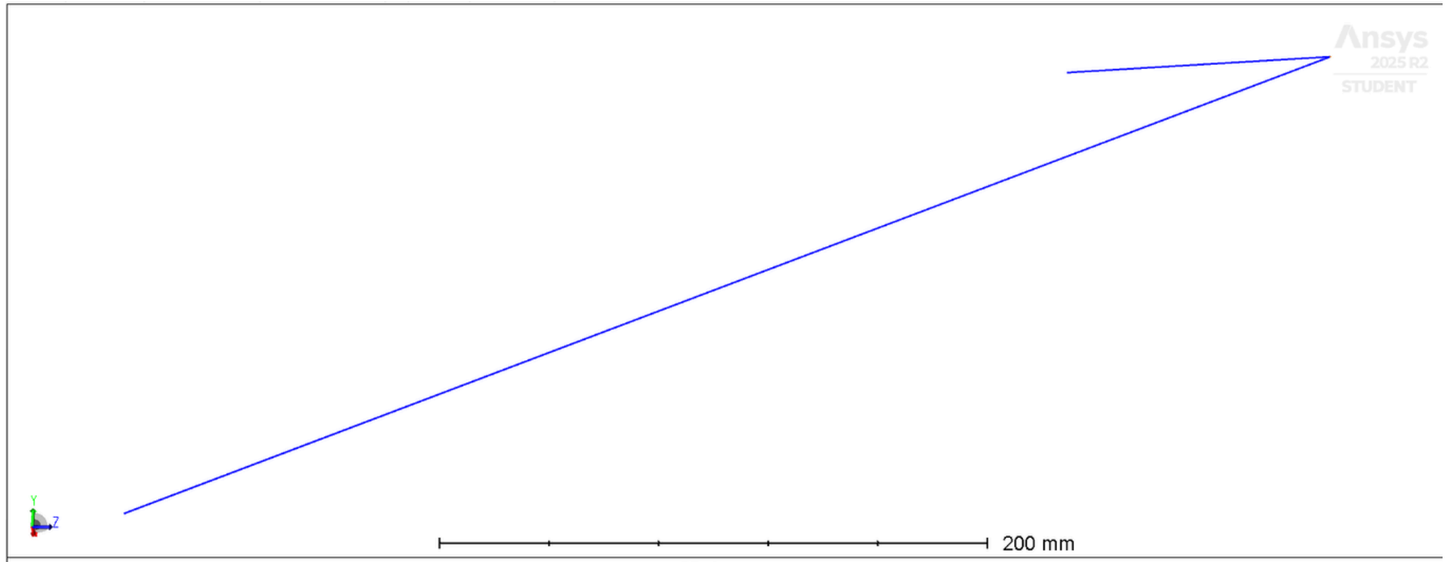
1. Aperture 1 → Grating → Aperture 2 → Image

Optical Simulation

Current struggles :

- How to set the 70-degree angle between the input and output arms of the monochromator
- The reflection angle visible at the grating is generated by the software. Understanding how it is defined

	Surface Type	Comment	Radius	Thickness	Material	Coating	Semi-Diameter	Chip Zone	Mech Semi-	Conic	TCE x 1E-6	Lines/µm	Diffract Order	Par 3(unused)	Par 4(unused)	Par 5(unused)
0	OBJECT (aper) Standard	Aperture 1	Infinity	100.000			0.000	-	-	0.0...	0.000					
1	Coordinate Break			0.000	-		0.000	-	-		-	0.000	0.000	0.000	0.000	0.000
2	Coordinate Break	Grating Rotation		0.000	-		0.000	-	-		-	0.000	0.000	0.000	10.000	0.000
3	STOP Diffraction Grating	Grating	-550.000	-300.0...			5.000E-03	-	-	0.0...	0.000	1.200	1.000			
4	Coordinate Break	Cancelling rotation		0.000	-		0.000	-	-		-	0.000	0.000	0.000	-10.000	P 0.000
5	Coordinate Break	Spectrometer Angle		0.000	-		0.000	-	-		-	0.000	0.000	0.000	70.000	0.000
6	IMAGE (aper) Standard	Aperture 2	Infinity	-			223.796	-	-	0.0...	0.000					



3D Layout

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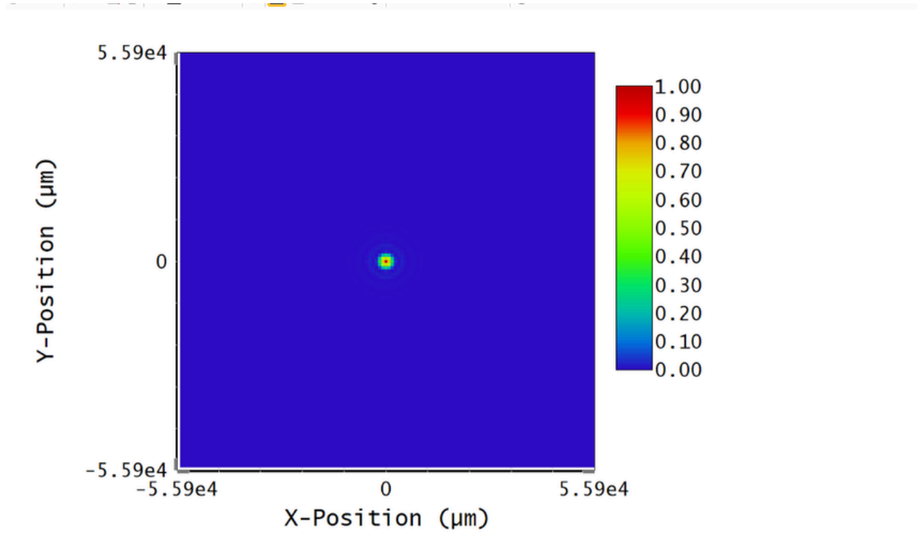
Zemax

VUV_Monochromator_2.0.zmx
Configuration 1 of 1



FFT PSF

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0.2650 µm at 0.0000 (deg).
Side is 111019.01 µm.
Surface: Image (Aperture 2)
Reference Coordinates: 1.65043E+02, -1.51120E+02

Zemax

VUV_Monochromator_2.0.zmx
Configuration 1 of 1

New flash lamp sensor head

- PCB assembly
- Mounted the 3D printed SiPM holder

→ Fits perfectly !

Measurements with flash lamp

- To quantify the crosstalk observed
- With air in the system, to see if we have a lot of visible light
- Repeatability measurement