LhARA Target Chamber Vacuum Simulations

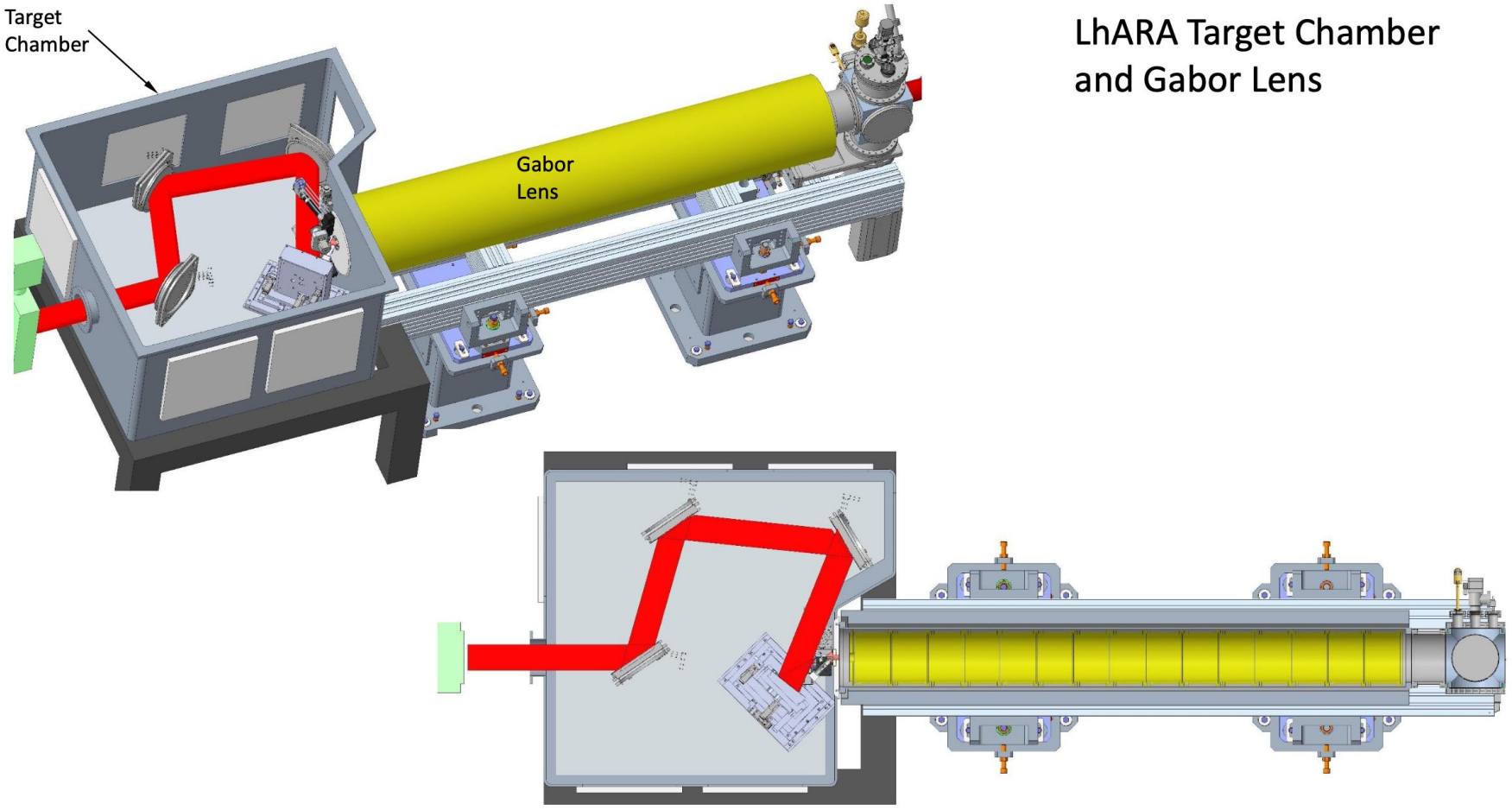
Keith Middleman

ASTeC Vacuum Solutions Group

STFC Daresbury Laboratory

Science and Technology Facilities Council

LhARA Target Design

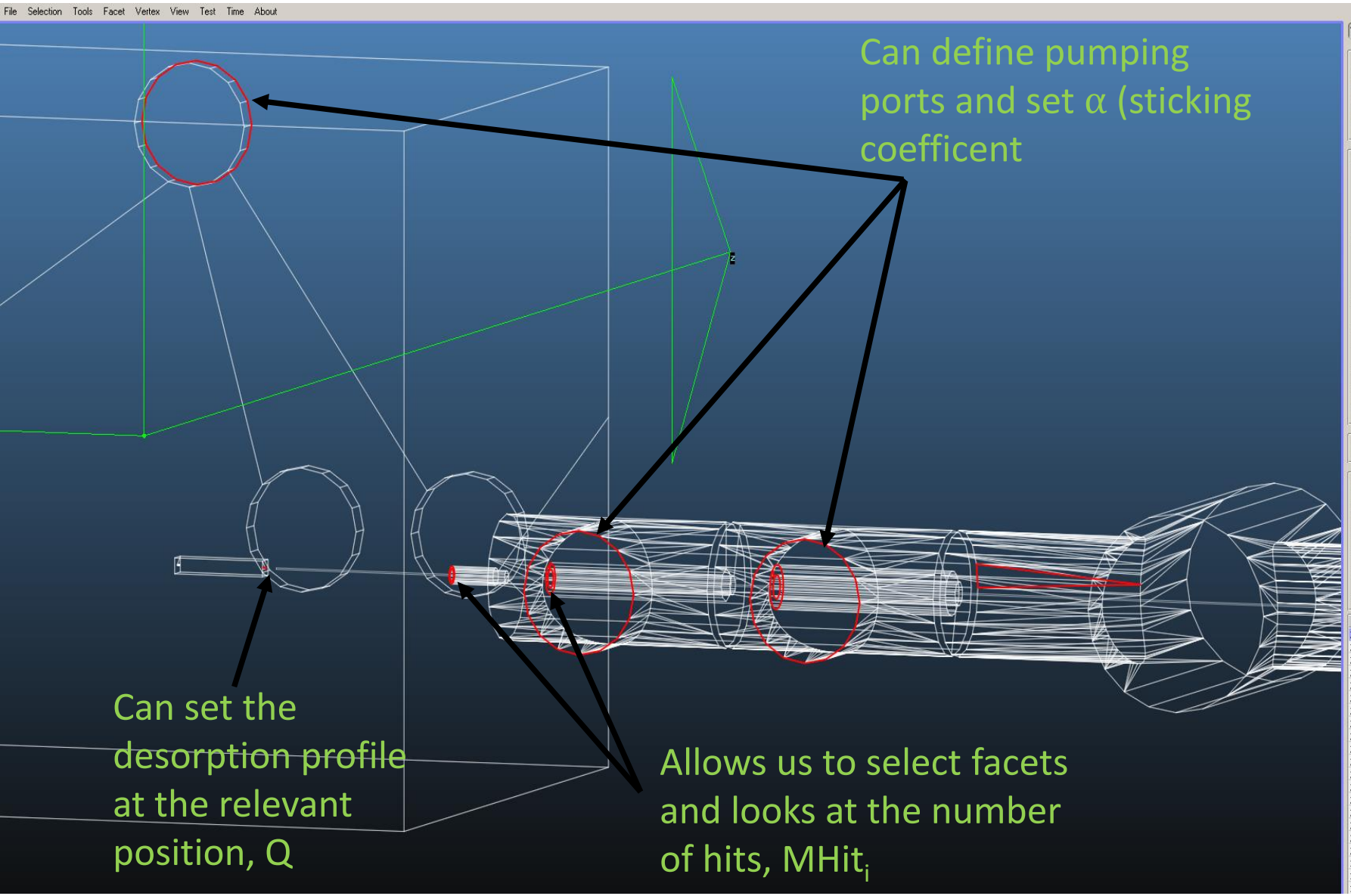


LhARA Target Chamber
and Gabor Lens

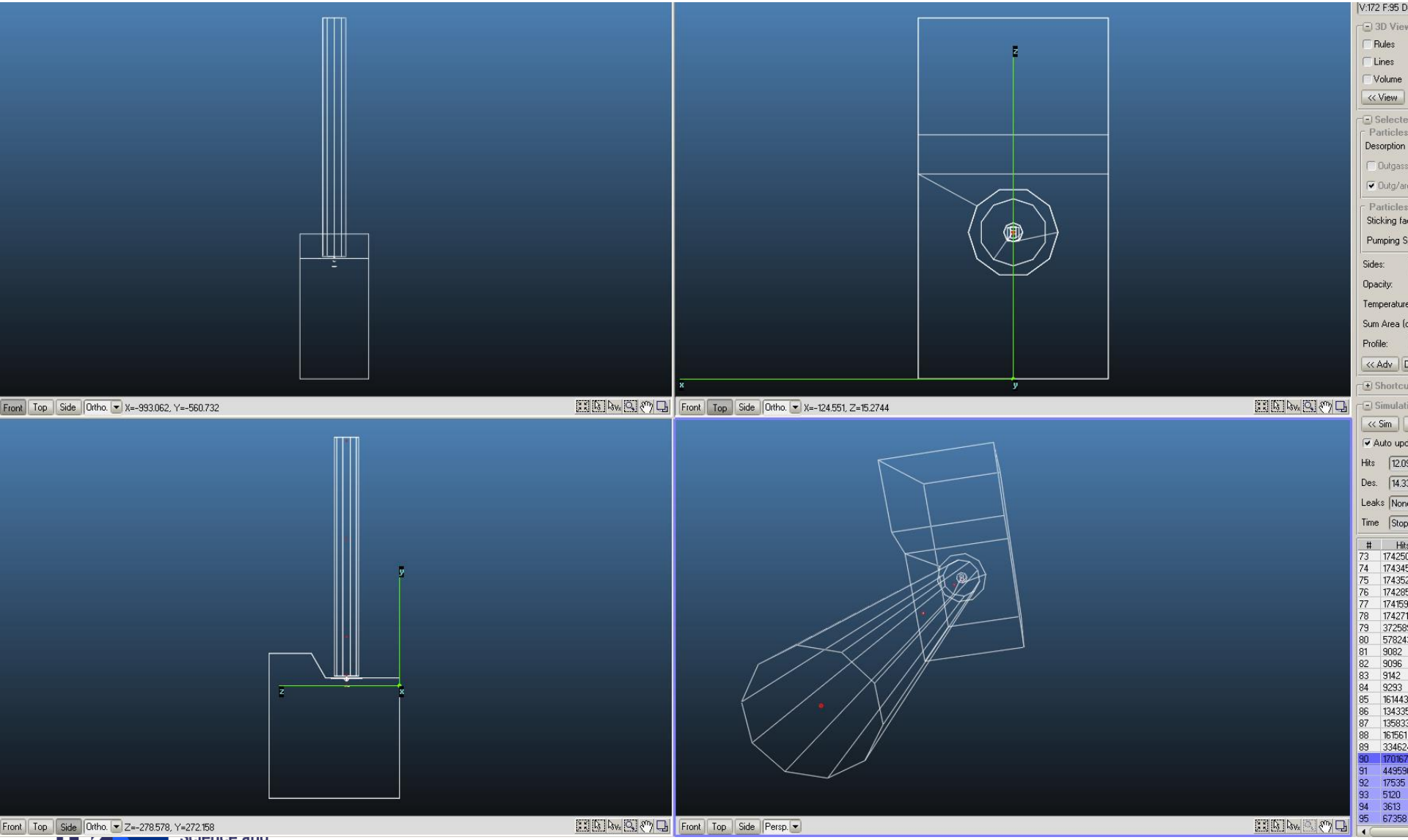
Science and
Technology
Facilities Council

Overview of MOLFLOW+

Keith Middleman



Overview of MOLFLOW+



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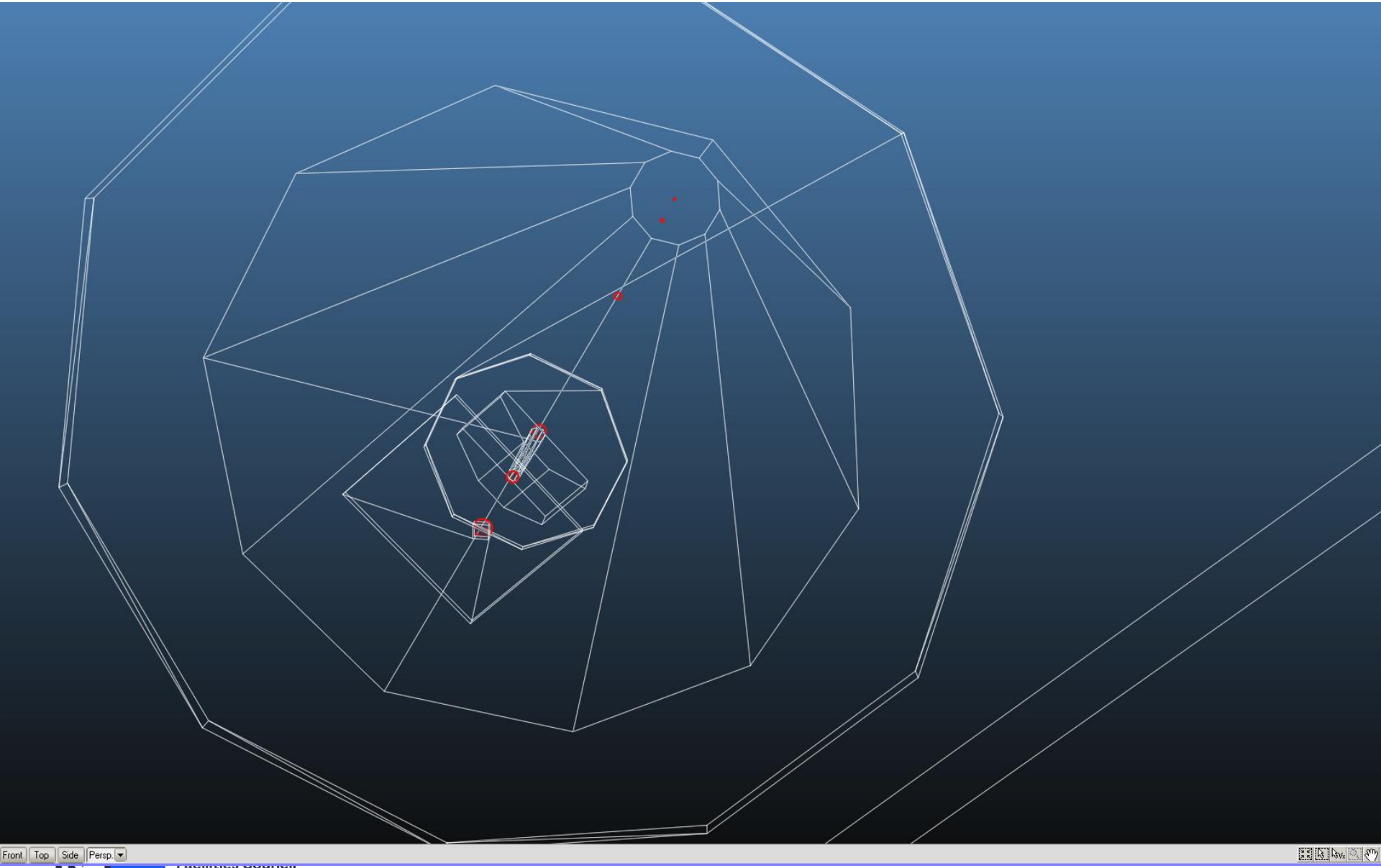
Overview of MOLFLOW+



Results

ITRF Transmission Probability Results

	Cosine Desoprtion		CosN = 2 Desorption		CosN = 10 Desorption		CosN = 100 Desorption	
Position along vessel	Number of hits	Transmission Probability (w)	Number of hits	Transmission Probability (w)	Number of hits	Transmission Probability (w)	Number of hits	Transmission Probability (w)
Number of gas molecules generated	2850083		4554821		2707689		14327524	
Entrance to nozzle (4 mm)	15761	5.53E-03	31061	6.82E-03	48074	1.78E-02	1701677	1.19E-01
Exit of nozzle (5.4 mm)	2063	7.24E-04	4626	1.02E-03	9767	3.61E-03	449590	3.14E-02
1/4 way along Gabor Lense	79	2.77E-05	184	4.04E-05	383	1.41E-04	17535	1.22E-03
1/2 way along Gabor Lense	28	9.82E-06	55	1.21E-05	120	4.43E-05	5120	3.57E-04
End of 1st Gabor Lense	18	6.32E-06	47	1.03E-05	79	2.92E-05	3613	2.52E-04

Transmission Probability represents the probability of a gas molecule generated in position X reaching position Y.

To achieve the 2 orders of magnitude pressure difference required between the target chamber and the Gabor Lens we are looking for the transmission probability to be better than 0.01 or 1E-2