

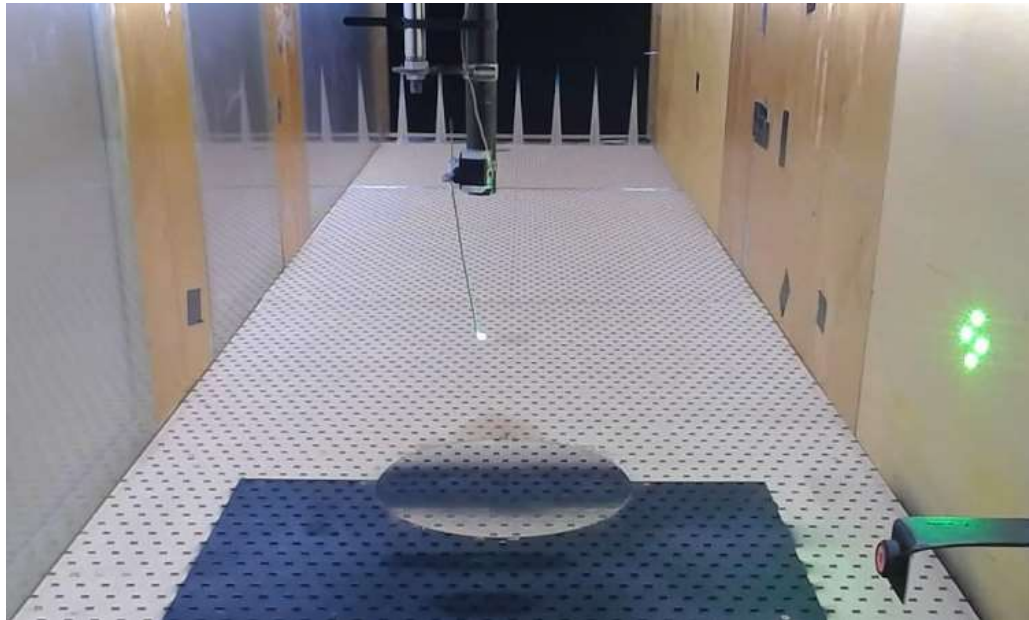
Laser Doppler Anemometry

- Laser Safety
- Interlocked Enclosures
- Laser power meter - Peaking up
- Beam Power Monitoring

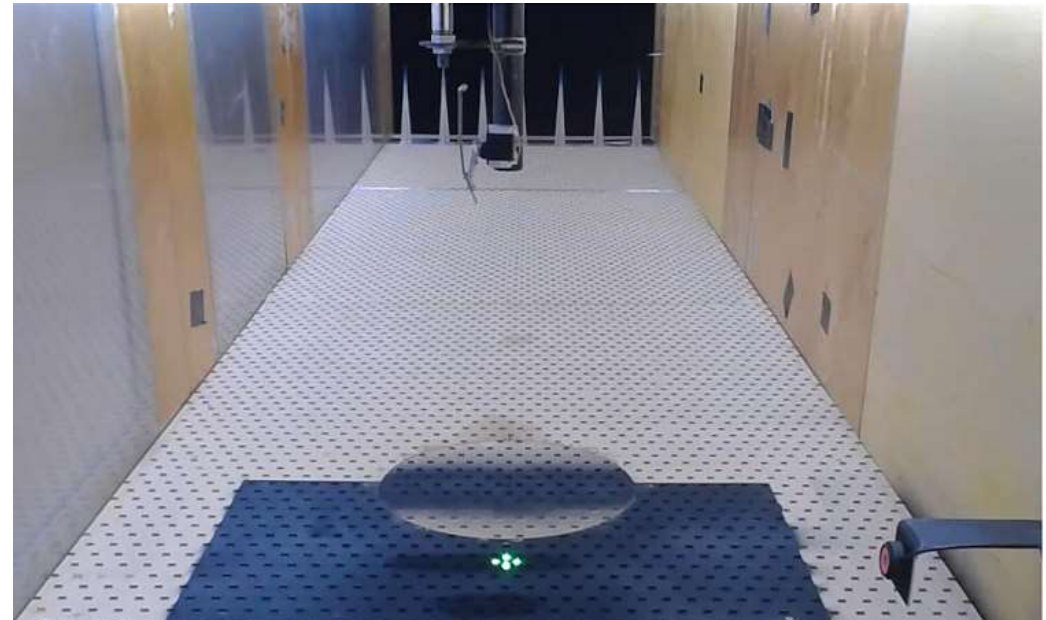


2D LDA with swinging mirror

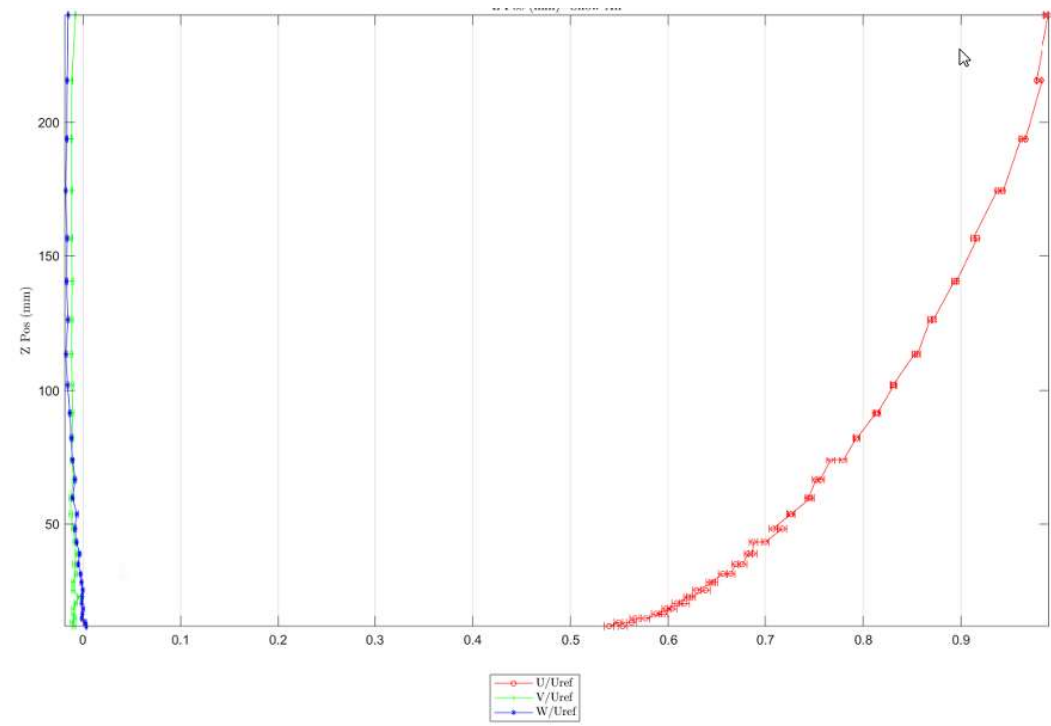
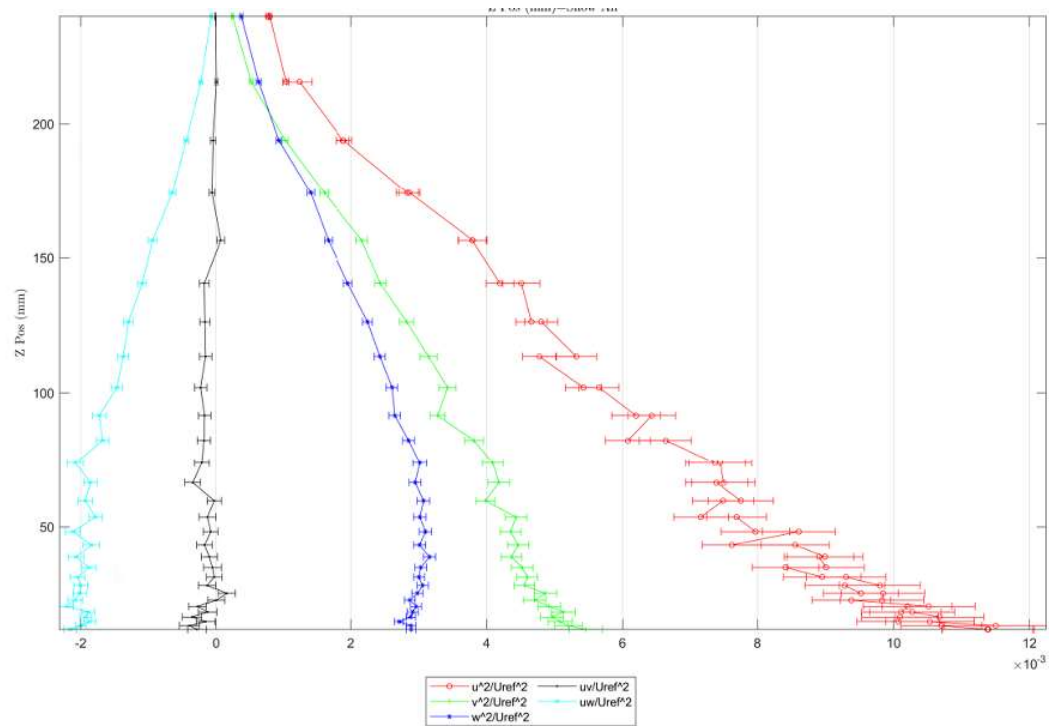
Mirror Down UW



Mirror Up UV

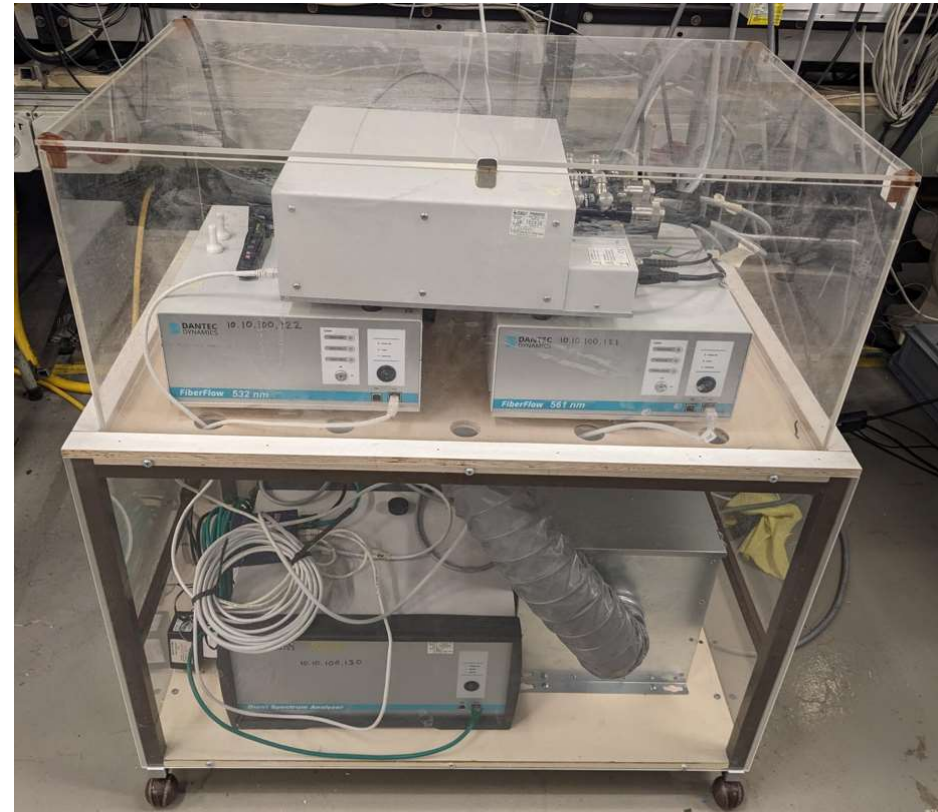


2D LDA with swinging mirror



Rapid loss of beam power

Fans blowing seeded air over the optics in the new design



3D LDA Measuring U1 U2 U3 then using Transformation Matrix to get UVW

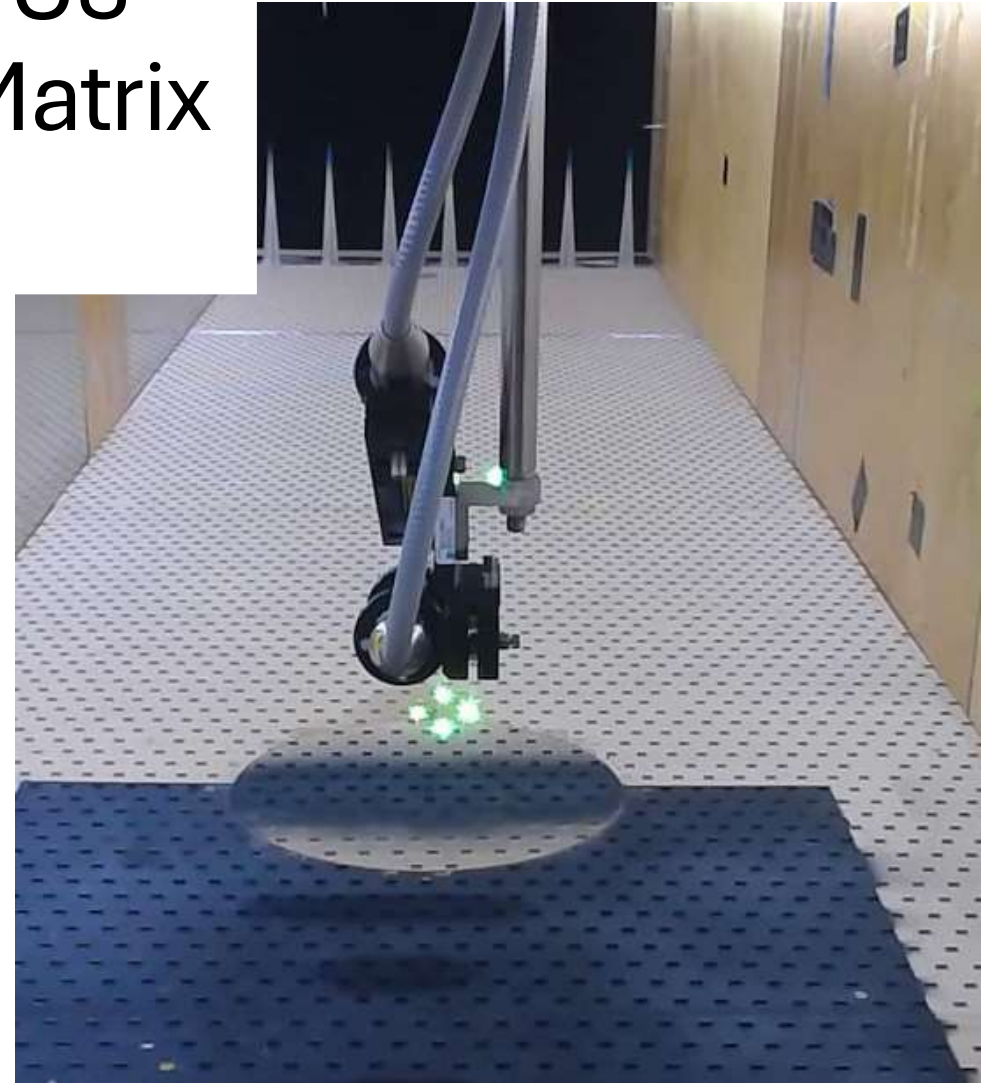
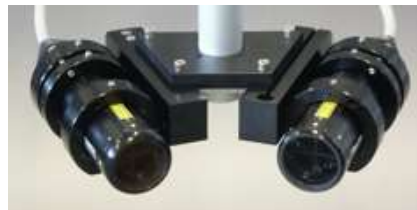
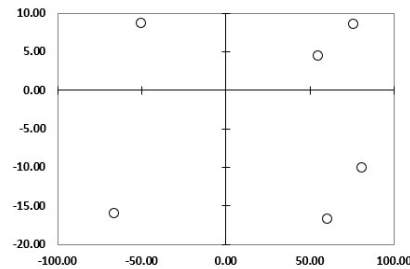
To be filled
Results

Coordinate	532 nm		561 nm		553 nm	
	Unshifted	Shifted	Unshifted	Shifted	Unshifted	Shifted
x	54.50	80.70	75.70	60.00	-66.40	-50.28
y	4.50	-10.00	8.65	-16.70	-15.93	8.69
z	300.00	300.00	300.00	300.00	300.00	300.00

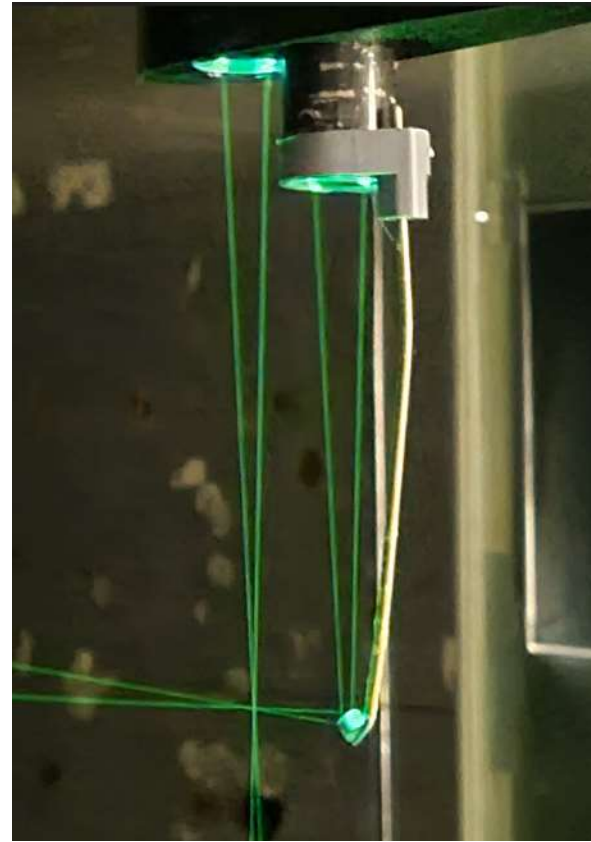
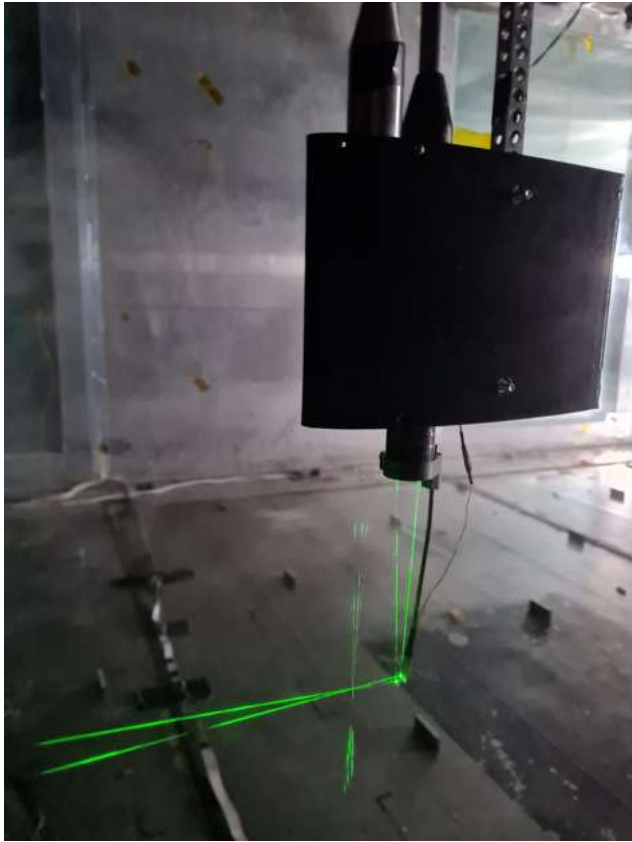
Origin: positions of beams at station 2 - NEAREST OPTIC HEAD						
Coordinate	532 nm		561 nm		553 nm	
	Unshifted	Shifted	Unshifted	Shifted	Unshifted	Shifted
x	0.00	0.00	0.00	0.00	0.00	0.00
y	0.00	0.00	0.00	0.00	0.00	0.00
z	0.00	0.00	0.00	0.00	0.00	0.00

3D LDA			Beam sep
Tranformation matrix			[mm]
0.849	0.504	1.010	15.276
-0.517	-0.924	-0.054	15.424
-0.129	4.518	4.526	15.304

Individual calib factors (1D & 2D)			
Wavelength	Focal length	Beam exp f	calib fac
[nm]	[mm]	[-]	[m/s/MHz]
532	160	1	5.578
561	160	1	5.826
553	160	1	5.788
Refractive index of the medium			1



3D LDA taking UVW Directly





Any
Questions?