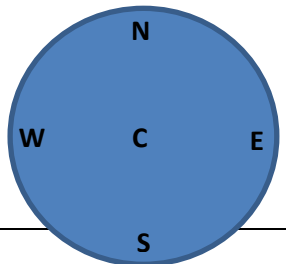
PECVD Installation Report:

1) Silicon Dioxide – Process Details and Results:

Date of Experiment: 19-9-2012

S No:	Gas Details	Pressure/Power /Temperature	Process Time	Thickness	RI
1)	**SiH_4:N_2:N_2O :: 8.5: 710 : 161.5 sccm**	1000mT/20W /300°C	4 min	300 nm	1.467
2)	do	do	1 min	73.37 nm	1.476
3)	do	do	24 sec	29.64 nm	1.45
4)	do	do	8 min	603 nm at center	1.465
				603.26 at North	1.466
				605.27 nm at East	1.465
				604.62 nm at South	1.465
				604.3 nm at West	1.465



The deposition rate for the standard recipe was found to be 74nm/min, and the refractive index was 1.46. The uniformity across a four inch wafer varied by 2nm, and the RI remained the same at all points.

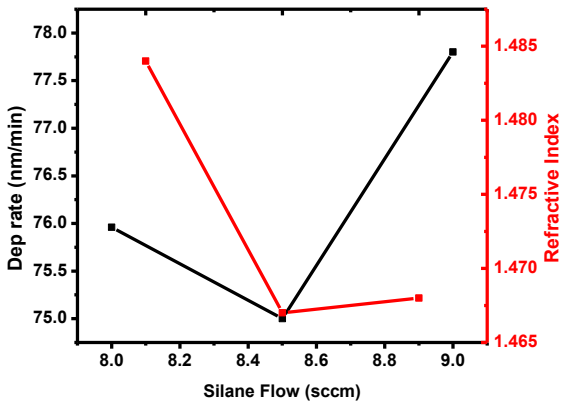


Fig 1: Shows variation of dep rate & RI with silane flow

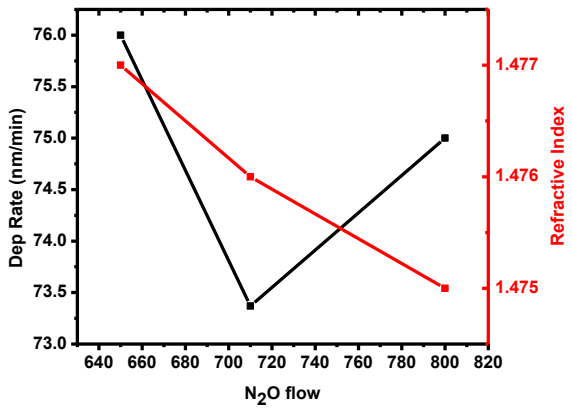
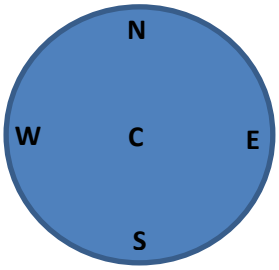


Fig 2: Shows variation of dep rate & RI with nitrous oxide flow

2) Silicon Nitride – Process Details and Results:

Date of Experiment: 20-9-2012

S No:	Gas Details	Pressure/Power /Temperature	Process Time	Thickness	RI
1)	**SiH_4:NH_3:N_2 :: 20: 20 : 980 sccm**	650mT/20W /300°C	14 min	209.56 nm	1.95
2)	do	do	5 min	76.8 nm	1.954
3)	**SiH_4:NH_3:N_2 :: 22: 20 : 980 sccm**	do	5 min	76.9 nm	1.966
4)	**SiH_4:NH_3:N_2 :: 20: 18 : 980 sccm**	do	5 min	78.19 nm	1.965
5)	**SiH_4:NH_3:N_2 :: 25: 20 : 980 sccm**	do	5 min	78.06 nm	1.99
6)	**SiH_4:NH_3:N_2 :: 20: 15 : 980 sccm**	do	5 min	78.50 nm	1.987
7)	**SiH_4:NH_3:N_2 :: 25: 20 : 980 sccm**	do	5 min	78.05 nm at center	1.989
				78.45 nm at North	1.988
				78.40 nm at East	1.988
				78.64 nm at South	1.989
				78.79 nm at West	1.986

The deposition rate for the standard recipe was found to be 15 nm/min, and the refractive index was 1.95. The uniformity across a four inch wafer was less than 1 nm, and the RI remained almost the same at all points measured.

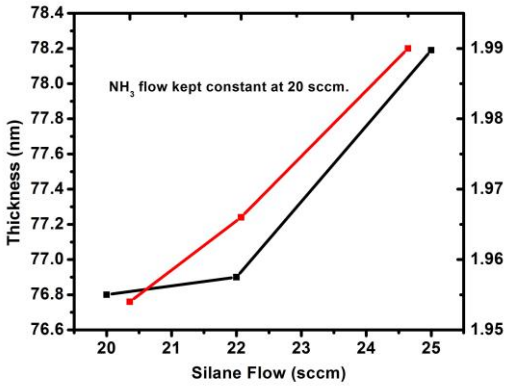


Fig 3: Variation in thickness and RI with silane flow

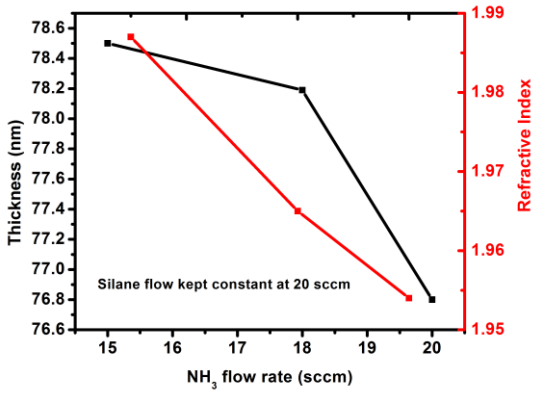


Fig 4: Variation in thickness and RI with N_2O flow