Denton Sputter Characterization
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Overview

Each cathode was tested using a DC power of 200W for a total of 6 minutes of Cr depostition. After, the wafers had Shipley 1813 photoresist spun on at 3000 rpm and were baked at 110℃ for 1 min. The wafers were then patterned using a characterization mask and developed. After development, the wafers were exposed to a chromium etch. Average thickness values were computed from step height measurements taken on the Tencor P10 contact profilometer and Zygo Optical Profilometer.

Sputter Heads and Sputter Rates

Average sputter rates were calculated following the process and measurement methods described above.

Cathode 1 sputters at the greatest average rate of *40.08* $\frac{nm}{min}$ *at 200 W* with a 3.09% average uniformity.

Cathode 2 sputters at a lesser average rate of *39.38* $\frac{nm}{min}$ *at 200 W* with a 5.42% average uniformity.

Cathode 3 sputters at the smallest average rate of *38.88* $\frac{nm}{min}$ *at 200 W* with a 5.19% average uniformity.

Cathode-to-Cathode % Uniformity

The system previously had a 13.11% cathode-to-cathode % uniformity.

The system now has a 1.53% cathode-to-cathode % uniformity.

Old Magnet System vs. New Magnet System

Cathode:	1	2	3
Sputter Rates (nm/min):			
Old magnet (nm/min):	42.66	36.04	32.91
%Uniformity:	6.35	3.61	4.37
New magnet (nm/min):	40.08	39.38	38.88
%Uniformity:	3.09	5.42	5.19
Cathode-to-Cathode %Uniformity:			
Old magnet:	13.11		
New magnet:	1.53		