

Figure 1: Stress-thickness over 50 W ALD cycles. There is an initial compressive stress during the film nucleation, then a 2 GPa tensile stress.

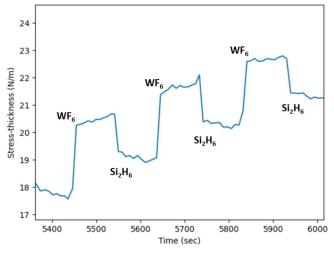


Figure 2: Surface Stresses during W ALD. WF<sub>6</sub> exposures result in a large tensile surface stress. The Si<sub>2</sub>H<sub>6</sub> exposures then partially release this large tensile surface stress.

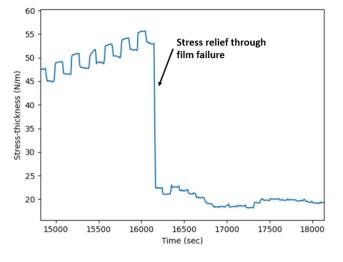


Figure 3: Stress-thickness results showing stress relaxation resulting from cracking and delamination failure of the W ALD film.