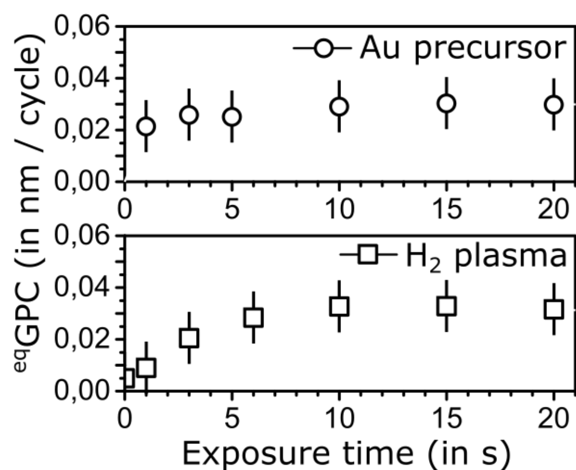

Figure 1: Saturation curves for the gold PE-ALD process. Both the Me_3AuPMe_3 precursor and H_2 plasma steps saturate after a 10 second exposure time. A growth per cycle of 0.03 nm per cycle is obtained on gold seed layers.

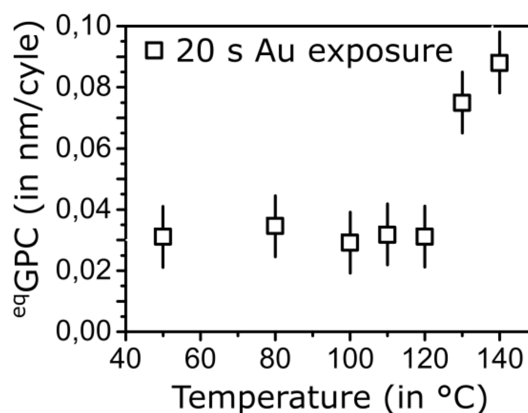

Figure 2: Temperature window for the gold PE-ALD process. Growth for this process is possible between 50°C and 120°C. Above 120°C the precursor starts to decompose on the surface as can be seen by the sharp increase in the growth per cycle. A 20 second precursor exposure and 10 second H_2 plasma exposure was used.

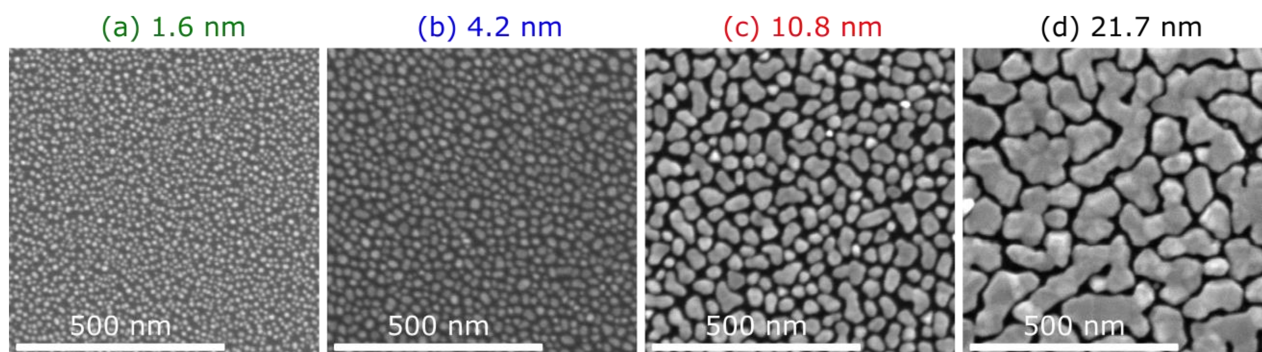

Figure 3: SEM micrographs of four as-deposited gold films with varying equivalent thickness, deposited on silicon substrates (native oxide). Depositions were carried out using 10 seconds precursor and reactant exposures at a substrate temperature of 120°C.

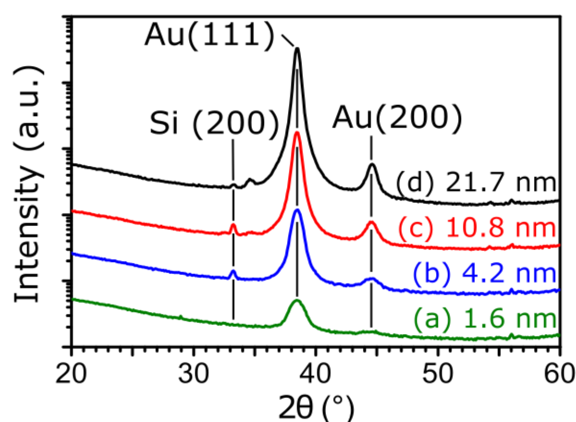

Figure 4: XRD spectra of the as-deposited gold films shown in Figure 3. The Au(111) and Au(200) diffraction peaks show that crystalline gold is deposited, randomly oriented on the surface.

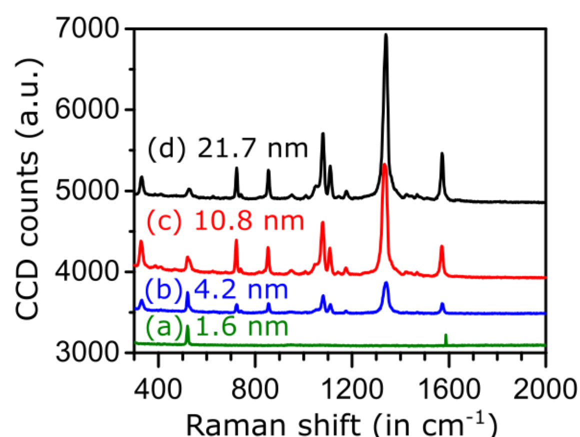

Figure 5: Free space Raman spectra of 4-nitrothiophenol (pNTP) molecules bound to the as-deposited gold films shown in Figure 3. Spectrum a) is the only spectrum that does not show the characteristic peaks for the pNTP molecule.