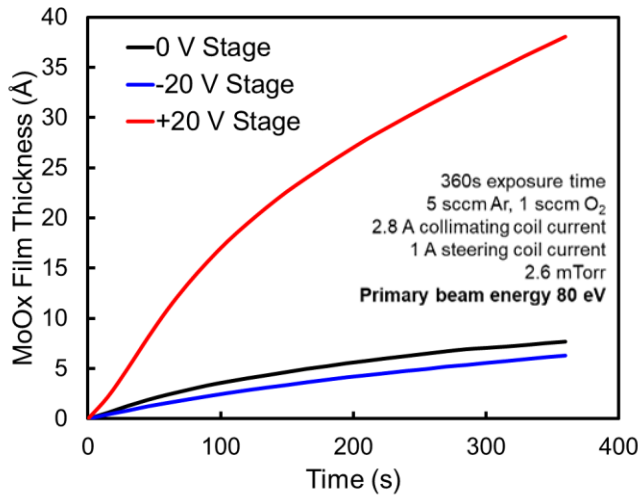
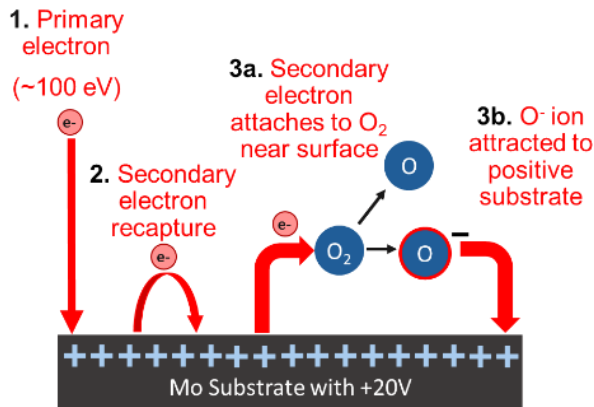


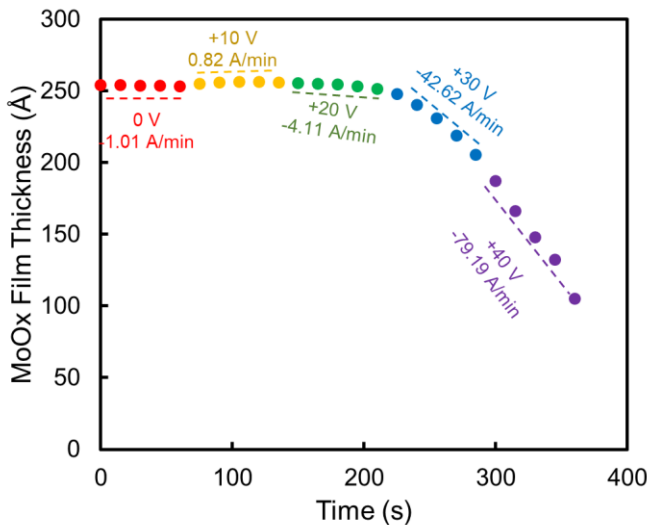
# Electron-Enhanced Etching of Molybdenum Using Sequential O<sub>2</sub> and HCl Reactive Background Gases to Form Volatile Molybdenum Oxychlorides



**Figure 1.** Spectroscopic ellipsometry results with 0V, -20V, and +30V applied to stage during Mo oxidation. Positive stage bias results in drastic enhancement to Mo oxidation.



**Figure 2.** Potential mechanism showing (1) incident electron beam, (2) secondary electron recapture, (3a) O<sup>-</sup> formation by dissociative electron attachment and (3b) O<sup>-</sup> reacting with Mo surface.



**Figure 3:** Spectroscopic ellipsometry results for MoO<sub>x</sub> etching by HCl and electrons at various stage voltages.