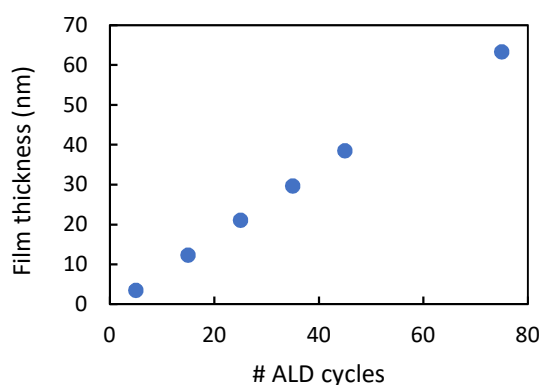


**Figure 1.** Saturation curves of the growth rate for the 2-step aluminum ruthenate process as a function of the (a) TMA and (b) RuO<sub>4</sub> pulse times. The thickness of the films was determined by X-ray reflectivity (XRR) measurements.



**Figure 2.** Linearity of growth for the 2-step aluminum ruthenate process. The thickness of the films was determined by XRR.

**Table 1.** Relative atomic concentrations of the elements detected in the bulk of the films by XPS depth profiling, for the three different ALD processes. Note that the overlap of the C1s peak with the Ru3d<sup>5/2</sup> peak in the XPS spectrum makes it difficult to quantify the carbon content of the films, additional chemical analysis is ongoing.

|   | [Ru] at% | [Al] or [Pt] at% | [O] at% |
|---|----------|------------------|---------|
| TMA/RuO <sub>4</sub>                                    | 24       | 38               | 38      |
| MeCpPtMe <sub>3</sub> /RuO <sub>4</sub>                 | 54       | 10               | 36      |
| MeCpPtMe <sub>3</sub> /RuO <sub>4</sub> /H <sub>2</sub> | 83       | 12               | 5       |