

**Figure 1:** Temperature dependence of the ALD process using methanol and RuO<sub>4</sub> as reactants, showing the growth per cycle as a function of substrate temperature, as obtained from XRR.



**Figure 2: a**) *Ex situ* X-ray diffractograms of the as-deposited, He-annealed, and air-annealed RuO<sub>2</sub> films. **b**) **and c**) *In situ* XRD patterns acquired during the anneals in helium and air, respectively.



Figure 3: Reaction mechanism of the developed RuO<sub>2</sub> ALD process.