

Supporting Information

Investigation of the physical, optical, and chemical properties of phase segregated AlCoO_x thin films from a novel hexol-type cluster

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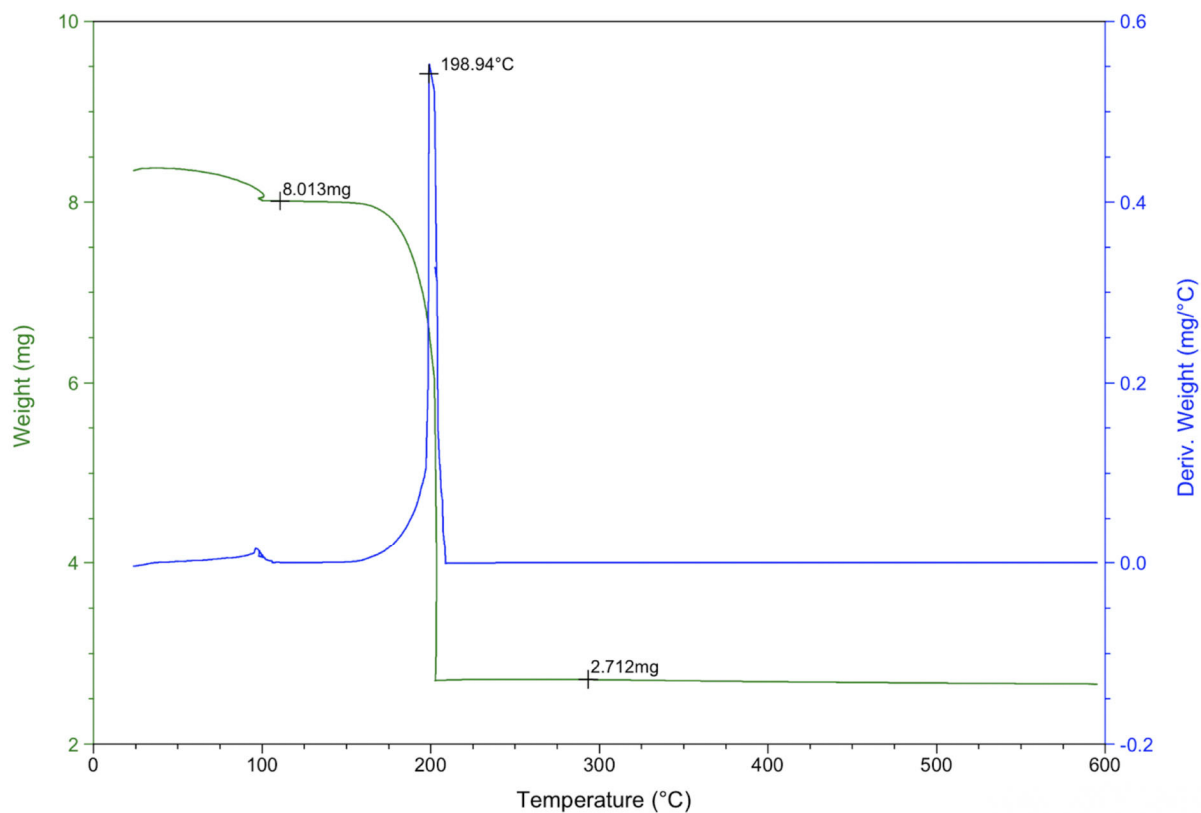


Figure S1. Thermogravimetric analysis (TGA) of **CoAl** precursor. Mass loss event at 198.94 °C correlates to the decomposition of the outersphere nitrate groups and ammine ligands.

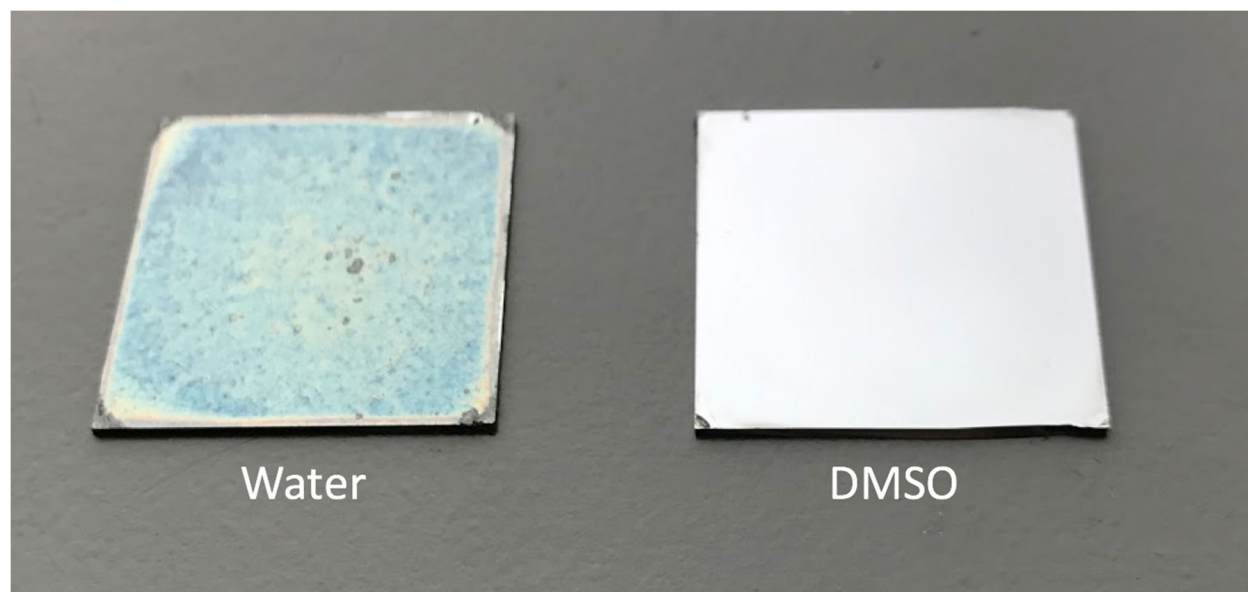


Figure S2. **CoAl** films fabricated from water (left) and DMSO (right). After spin coating and soft bake at 250 °C films from water had significant surface defects compared to ones from DMSO.

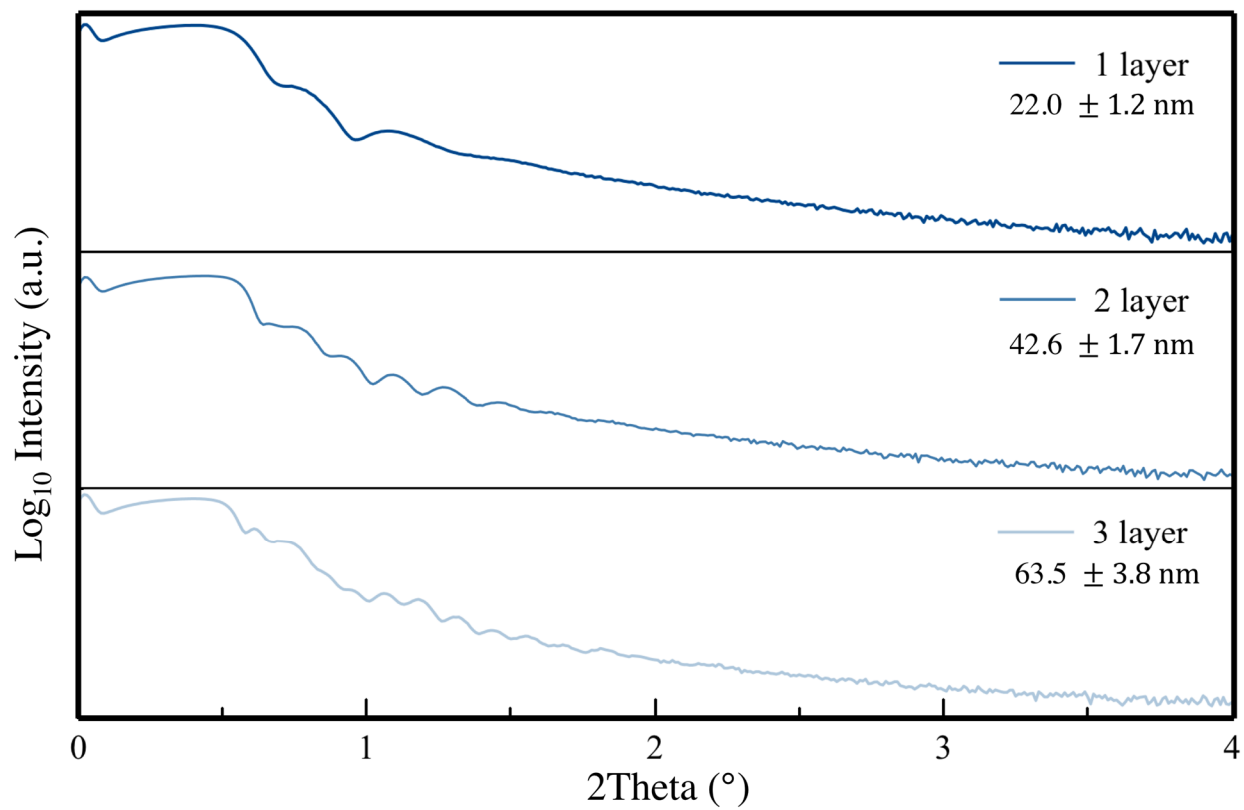


Figure S3. XRR diffraction pattern of 1-layer, 2-layer, and 3-layer **CoAl** films annealed in box furnace at 700 °C with corresponding film thicknesses.

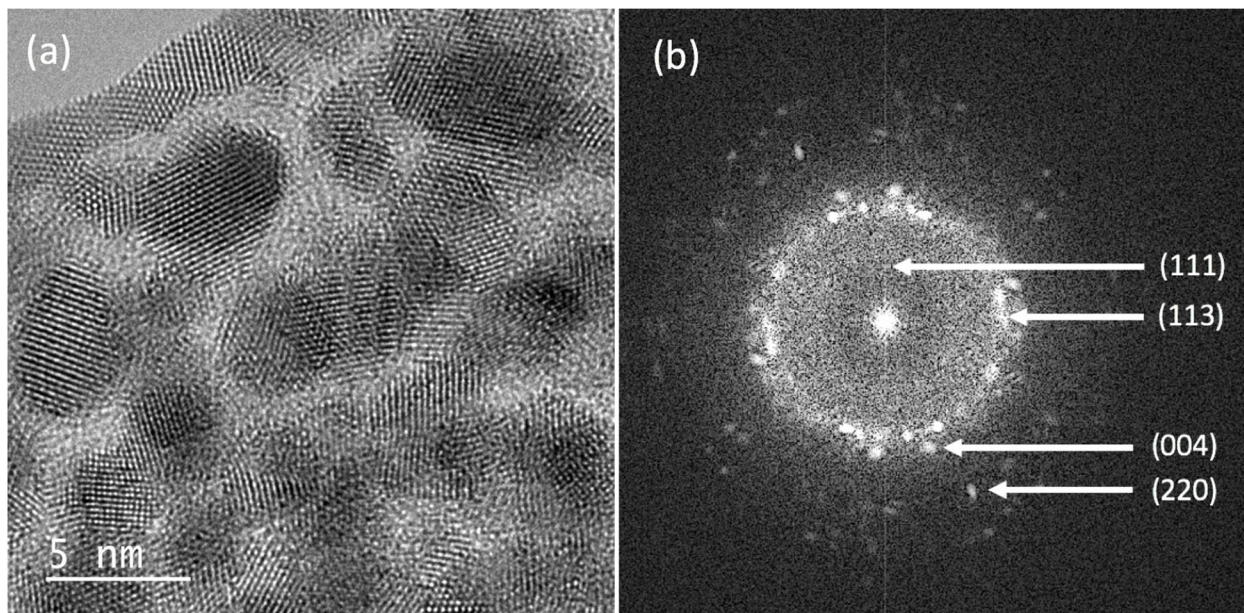


Figure S4 TEM image of 1-layer **CoAl** film annealed at 800°C (a) and corresponding electron diffraction pattern (b) showing the (111), (113), (004), and (220) reflections of Co_3O_4 .

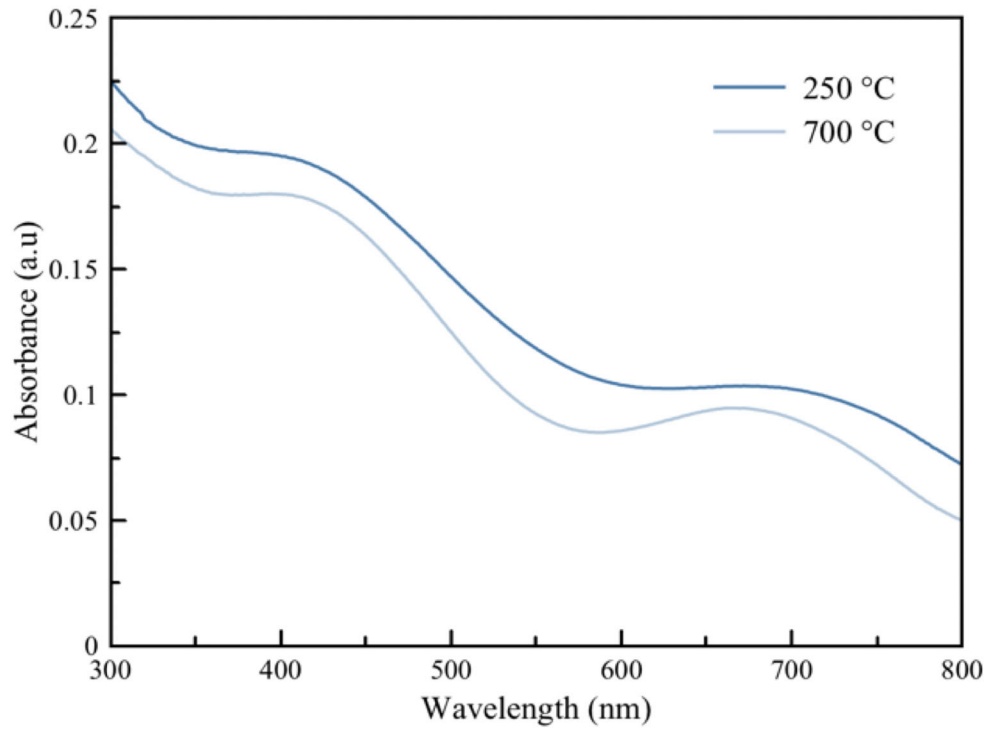


Figure S5. UV-Vis spectra of 1-layer **CoAl** film after hot plate anneal at 250 °C and subsequent box furnace anneal at 700 °C.