Atomic Layer Deposition of Ga_2O_3 Thin Films Using a Liquid Precursor Pentamethylcyclopentadienyl Gallium and Combinations of H_2O and O_3

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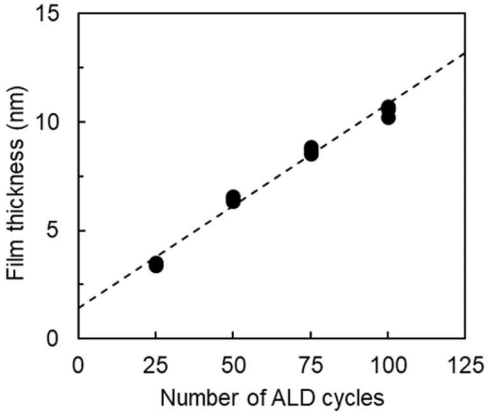
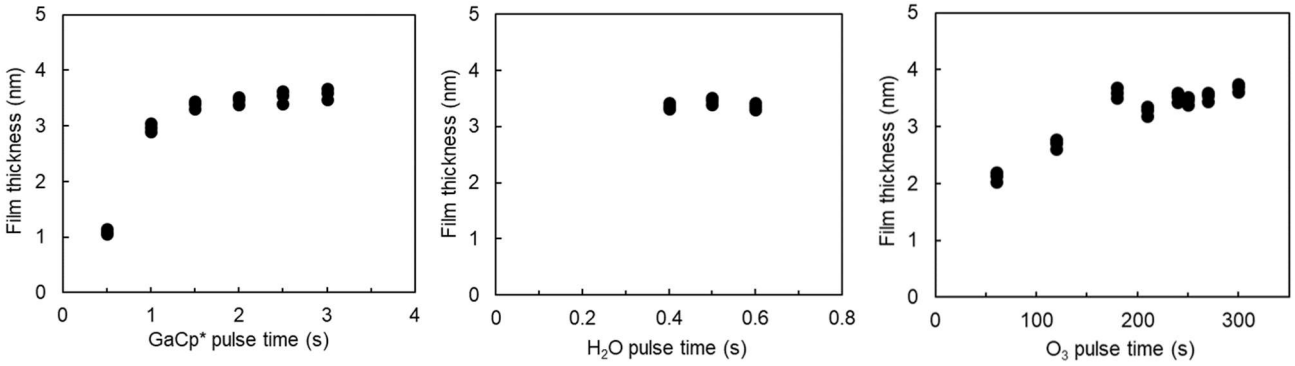
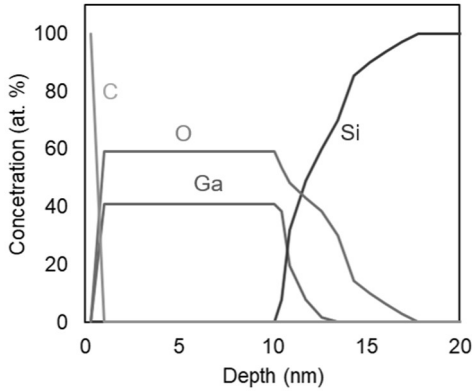


Ga_2O_3 film thickness as a function of ALD cycles. The ALD conditions were a GaCp* pulse time of 2.0 s, a H_2O pulse time of 0.5 s, an O_3 pulse time of 250 s, and a growth temperature of 230 °C.



Ga_2O_3 film thickness as a function of (a) GaCp* pulse time, (b) H_2O pulse time, and (c) O_3 pulse time deposited at 230 °C. The number of ALD cycles was 25.



Elemental depth profiles obtained using HR-RBS for a Ga_2O_3 film grown by the WOz process. Substrate temperature: 230 °C, number of ALD cycles: 100, GaCp* pulse time: 2.0 s, H_2O pulse time: 0.5 s, and O_3 pulse time: 250 s.