

Optical Properties and Carrier Transport Characteristics of NiO Films Grown via Low-Temperature Hollow-cathode Plasma-assisted Atomic Layer Deposition

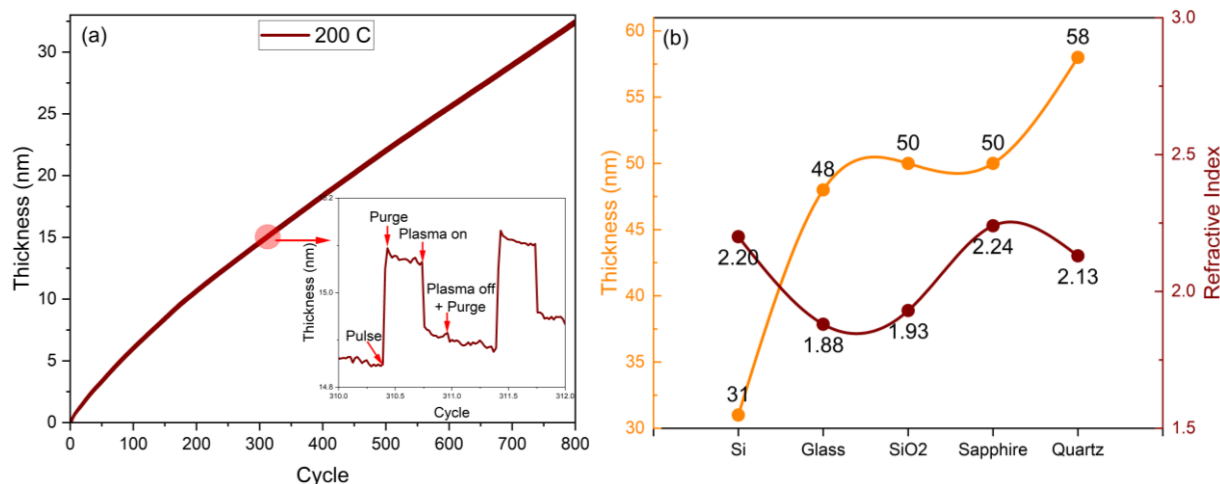


Figure 1. (a) 800-cycle NiO deposition experiment on Si substrate recorded with in-situ ellipsometry. Inset: Zoomed-in growth cycles from 310th and 311th ALD cycles, depicting clearly the sharp NiCp₂ surface chemisorption followed by plasma-assisted ligand removal which happens fast as well, (b) Thickness and refractive index values of the NiO films deposited on different substrates.

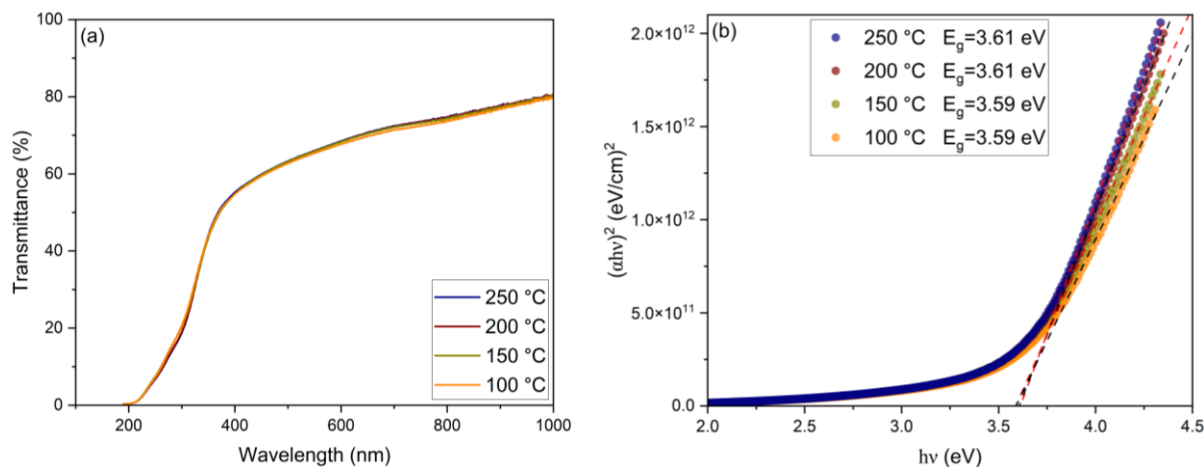


Figure 2. UV/Vis. Measurements of the as-deposited NiO films on quartz substrates: Transmittance spectra showing strong absorption in the UV region (a) and corresponding Tauc plots showing the bandgap energy values of ~ 3.6 eV (b) of the NiO films deposited at different temperatures.