

Impact of Relative Humidity during Spin-Deposition of Metal Oxide Thin Films from Aqueous Solution Precursors

Paul N. Plassmeyer, Gavin Mitchson, Keenan N. Woods, David C. Johnson, Catherine J. Page*

Department of Chemistry and Biochemistry and Material Science Institute, University of Oregon, Eugene, Oregon, 97403, United States

*cpage@uoregon.edu

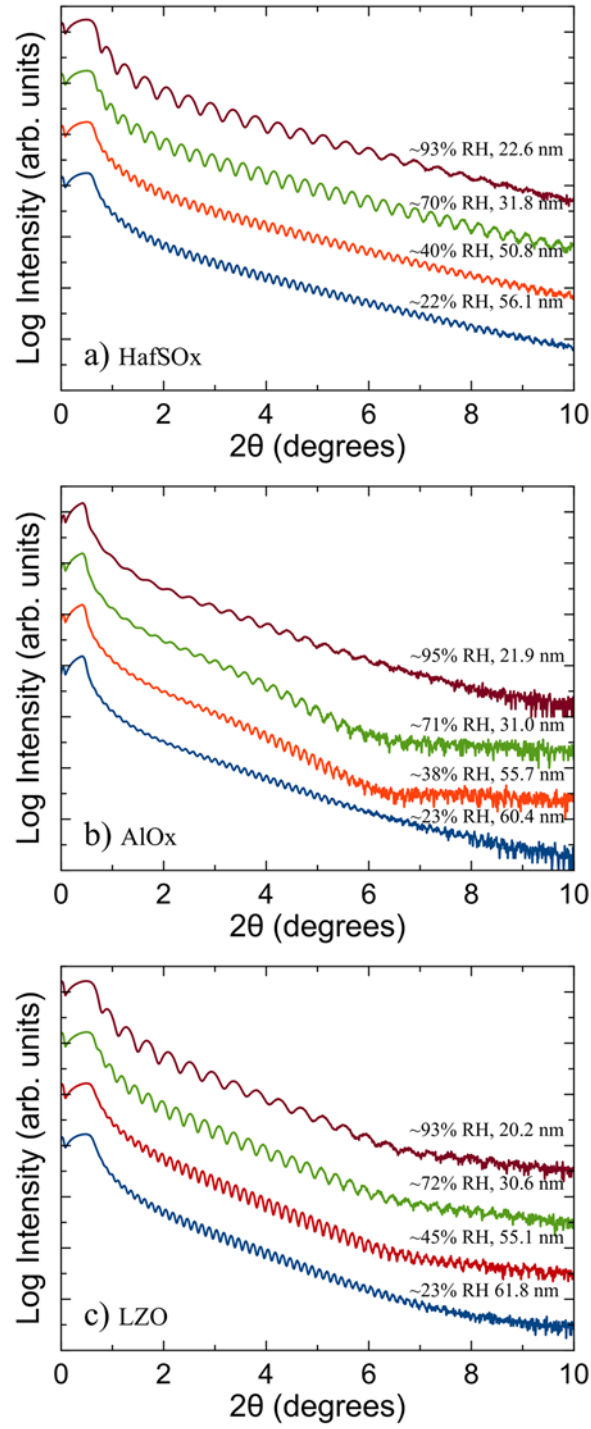


Figure S1. X-ray reflectivity patterns of a) HafSOx, b) AlOx, and c) LZO films deposited at relative humidities between ~20 and ~95% and annealed to 500 °C. Relative humidity and thickness are shown above each trace.

Fitting Parameters for Equation 2 and Dotted Line in Figure 5

Parameters α and β are fixed by experimental values (below). ξ is obtained by a least squares line fit to the experimental data.

$\alpha = 1.8 \times 10^{-2} \text{ Pa s M min}^{-1/2}$ Obtained by dividing concentration (1.0 M) by the square-root of the spin speed in rpm ($3000^{1/2}$)

$\beta = 1.0 \times 10^3 \text{ Pa s}$ Approximate viscosity of 1.0 M precursor solutions

$\xi = 3.0 \times 10^3 \text{ Pa s}$ Dependence of viscosity on evaporation rate, from line fit.