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Growth of Vanadium Dioxide Thin Films Using Magnetron Sputtering FANGFANG SONG, B.E. WHITE JR., Binghamton University — In this work, we present our experimental investigation of vanadium oxide thin film deposition. RF and DC magnetron sputtering are used for thin film deposition. Post deposition anneal are introduced to stabilize the vanadium dioxide phase. The impact of deposition conditions and anneal conditions on the structural and morphological properties of the thin films, as determined by x-ray diffraction and scanning electron microscopy, will be discussed. Results indicate that on the technologically relevant silicon dioxide surface, the transitional phase of vanadium dioxide can be stabilized by post deposition anneal at 550°C and oxygen partial pressures between 3.6×10^{-4} torr and 10^{-2} torr. The films obtained show a resistivity change of a factor of 200 at 350k. The shift in transition temperature is attributed to thin film stress.

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Fangfang Song
fsong1@binghamton.edu
Binghamton University

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