Abstract Submitted
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**Analysis of Stoichiometry and Valence in LaVO3 Thin Films**[1]
TY WILSON, BIWEN ZHANG, CHRISTIANNE BEEKMAN, Florida State University — LaVO3 (LVO) has been proposed as a promising material for photovoltaics because its strongly correlated 3d electrons can facilitate creation of multiple electron-hole pairs per incoming photon, which would lead to increased device efficiency. Our group grows thin films of LVO on SrTiO3 substrates using pulsed laser deposition. We can control the electronic properties and stoichiometry of the films by adjusting laser fluence during growth [1]. A quantitative analysis of multiple samples was done using x-ray photoemission spectroscopy (XPS) to deduce the relative concentrations of Vanadium and Lanthanum. An XPS machine was used to measure the binding energies of these elements, with Carbon 1s (284.6eV) measurements being used to reference any charging on the surface of the material. Resulting peak areas were then used to determine the stoichiometry and measure the valence states. [1] B. Zhang et al. , Phys. Rev. Mater., 5, 085006 (2021).

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