Supplementary Information

Strong Carrier Localization in 3*d* Transition Metal Oxynitride $LaVO_{3-x}N_x$ Epitaxial Thin Films

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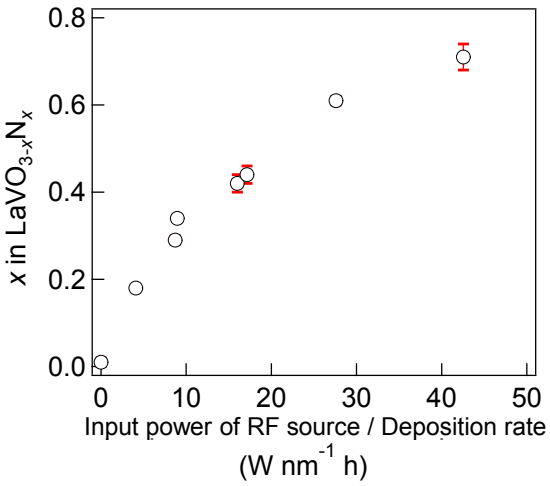
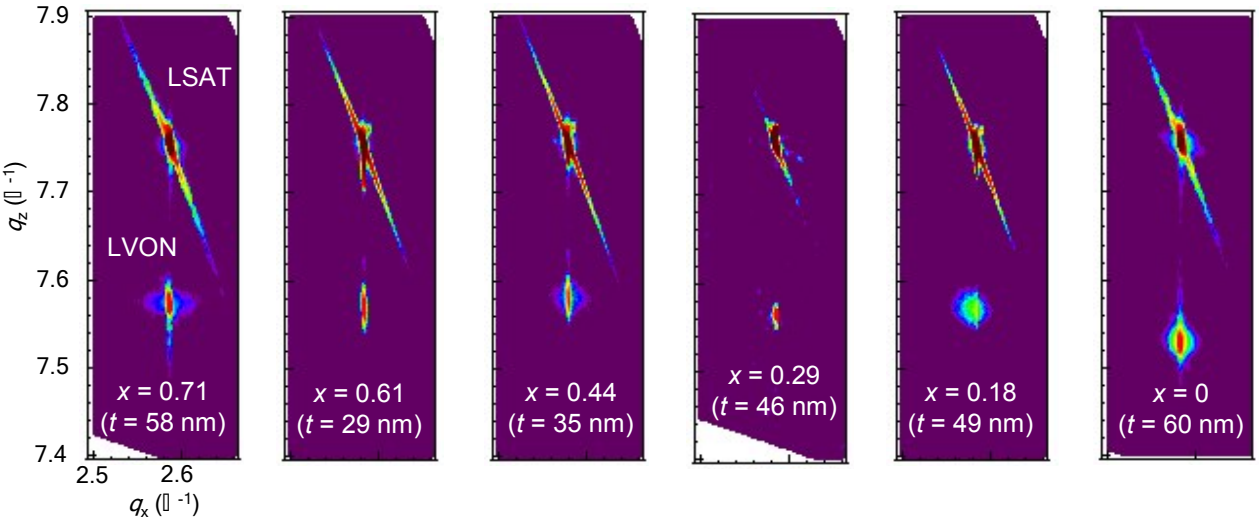
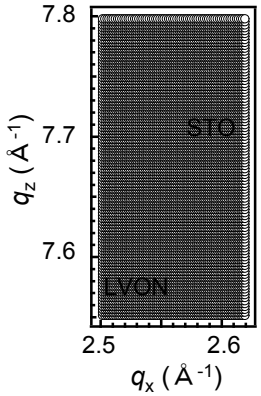


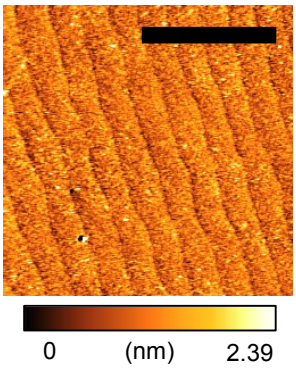
Supplementary figure S1. Nitrogen content x of the $LaVO_{3-x}N_x$ thin films plotted against the ratio of the input power of the RF source to the deposition rate. x was systematically increased with an increase of the input power of the RF source/deposition rate ratio.



Supplementary figure S2. Reciprocal space maps around 103 diffraction of $LaVO_{3-x}N_x$ thin films with various nitrogen amount grown on LSAT (001).



Supplementary figure S3. X-ray diffraction reciprocal space map around 103 diffraction of the $LaVO_{2.29}N_{0.71}$ thin film grown on a $SrTiO_3$ (001) substrate.



Supplementary figure S4. Typical AFM image of the $LaVO_{2.29}N_{0.71}$ thin film grown on a $SrTiO_3$ (001) substrate. Scale-bar denotes a length of 1 μm.