

ソフト化学による無限層ニッケル酸化物超伝導薄膜の合成

Superconducting infinite layer nickelate thin films via a soft chemistry approach



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Ever since their discovery, superconductivity in cuprates has motivated the search for materials with analogous electronic or atomic structure [1]. Recently, superconductivity was observed in nanoscale infinite layer nickelate thin films of $\text{Nd}_{0.8}\text{Sr}_{0.2}\text{NiO}_2$, epitaxially stabilized on SrTiO_3 substrates via topotactic reduction from the perovskite precursor phase [2]. Here we present how soft chemistry approaches can be used to synthesize superconducting infinite layer nickelates from their perovskite precursor phase, using topotactic reactions. We will discuss our preliminary understanding of aspects that are similar and different from the cuprates, as well as initial exploration of the compositional variations accessible in this materials system [2-5].

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*Supported by DOE BES MSD (DE-AC02-76SF00515), the Moore Foundation (GBMF4415), and DOD AFOSR (FA 9550-16-1-0305).