

# See-Through Tech: Diving into Cutting-Edge Transparent Display Material Research

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Transparent conductive oxides (TCOs) are a class of materials exhibiting a unique confluence of high optical transparency in the visible spectrum and superior electrical conductivity. These properties render them integral components in contemporary optoelectronic applications, including but not limited to smartphones and photovoltaic cells. While n-type TCOs currently dominate the field, the advancement of high-performance p-type TCOs is imperative for the realization of sophisticated transparent electronic systems. Nevertheless, the development of p-type TCOs is presently encumbered by significant performance limitations. Following last year's study involving n-type Nb-doped  $\text{TiO}_2$ , this year's investigation focuses on  $\text{La}_{2/3}\text{Sr}_{1/3}\text{VO}_3$  (LSVO), a material identified as a promising candidate for p-type TCO applications. This study will entail the fabrication of LSVO thin films via vacuum deposition techniques. Subsequent characterization will encompass comprehensive analyses of their crystallographic structure, optical transmittance, and electrical transport properties to elucidate their potential as viable p-type transparent conductive films.

The overarching objective of this research is to afford experiential engagement with the methodologies of advanced materials research, thereby fostering the development of fundamental competencies within the domain of materials science.

