Special Issue

Complex Oxides: Freestanding, Interfaces, and Tunnel Junctions

Message from the Guest Editor

The fast increase of data/processing requirements is forcing the use of novel materials and/or computation architectures. One of the most attractive possibilities is the implementation of Complex Correlated Oxides (CCOs) into different technological devices because of their unique capabilities and exciting fundamental impact. CCOs are materials that show macroscopic quantum phenomena because of the unscreened Coulomb repulsion of d electrons, which gives rise to a delicate entanglement between different degrees of freedom: strain, orbital, charge, and spin. These complex correlated interactions result in a plethora of ground states with ferroic orders and superconductivity as well as showing metal–insulator transitions in some cases. Furthermore, the possibility of bringing different CCOs into direct contact may induce emergent phenomena at the interfaces, where functional properties can be tuned through external stimuli (electric fields, light, etc.). This Special Issue aims to present the most recent achievements in oxide tunnel junctions, including advances in oxide interfaces, with neuromorphic perspectives, as well as the advances of freestanding oxides.

Guest Editor

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

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