# Formation of metallic states between insulating SnO and $SnO_2$

**A. Albar, Z. Wang, H. N. Alshareef, and U. Schwingenschlögl**
*KAUST, Physical Science& Engineering Division, Thuwal23955-6900, Kingdom of Saudi Arabia*

The electronic properties of stoichiometric SnO/$SnO_2$ interfaces are investigatedusing density functional theory. Metallic states are demonstrated to be formed betweenthe two insulating oxides, independent of the interface termination. The propertiesof the metallic states are studied and the mechanisms responsible for their creationidentified. Besides the defects that are always present in the experiment, the observedinterface metallicity contributes significantly to the conductivity of mixed phasesamples.

## Biography:

Arwa Albar is currently a Ph.D student in Material Science Engineering, King Abdullah University of Science and Technology, Saudi Arabia. Her research is based on first principle a calculation which is used to investigate the electronic, magnetic, and structural properties of oxide materials under defects and interfaces.