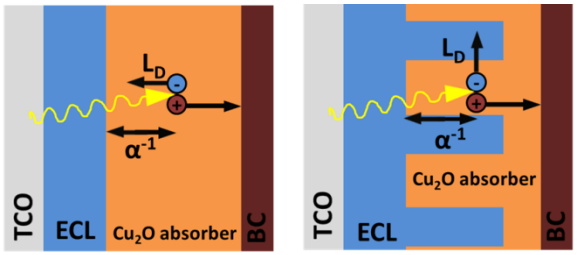
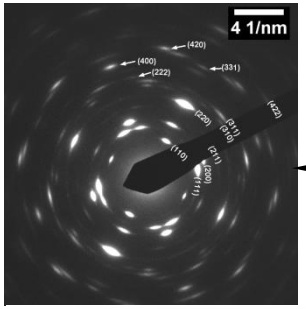
PhD Research Highlights

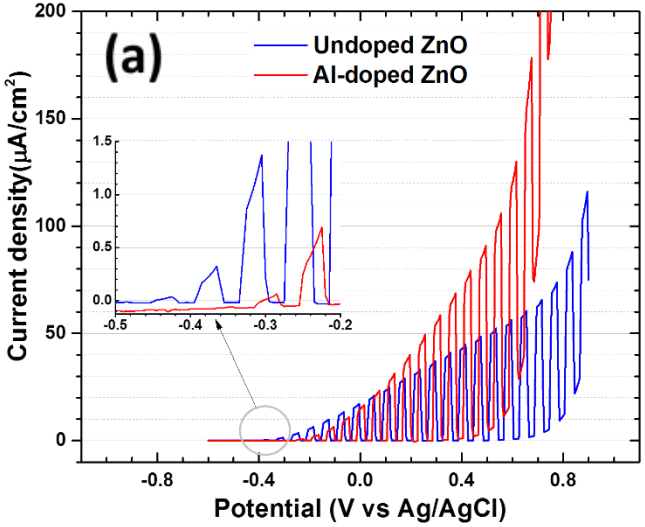
PLD grown ZnO & Cu_2O thin films for photovoltaic applications

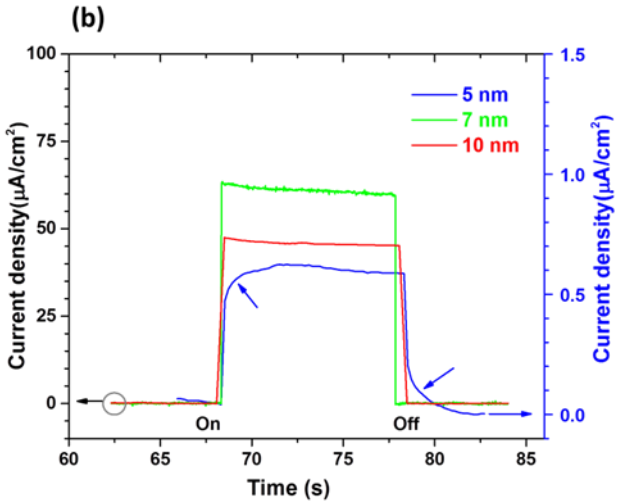


Nanoengineered All-Oxide Solar Cell

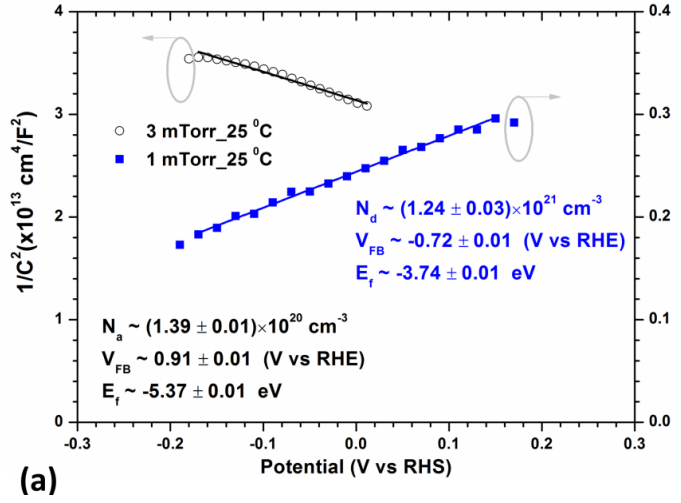


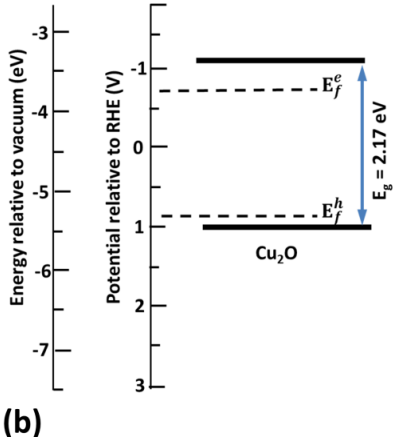
Low-temperature grown Cu_2O on NaCl(100).



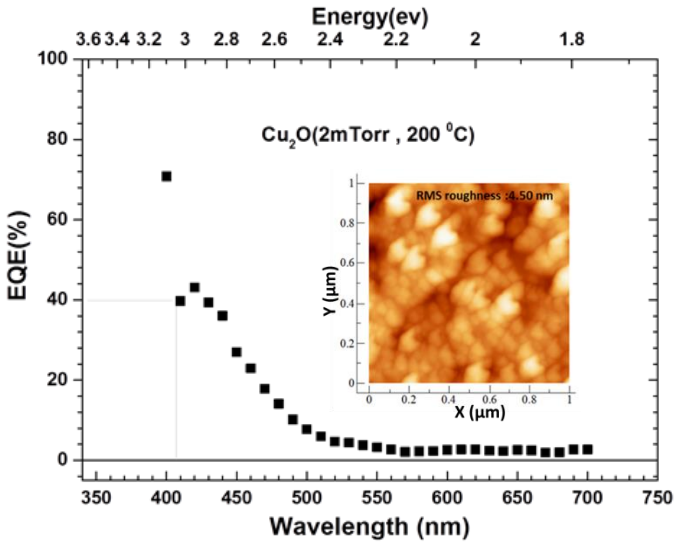


(a) Current-Voltage curve of bare ZnO and AZO electrodes and (b) Transient current response of ZnS coated AZO under chopped LED (λ=376nm) illumination having optical power 1.60±0.01mW.





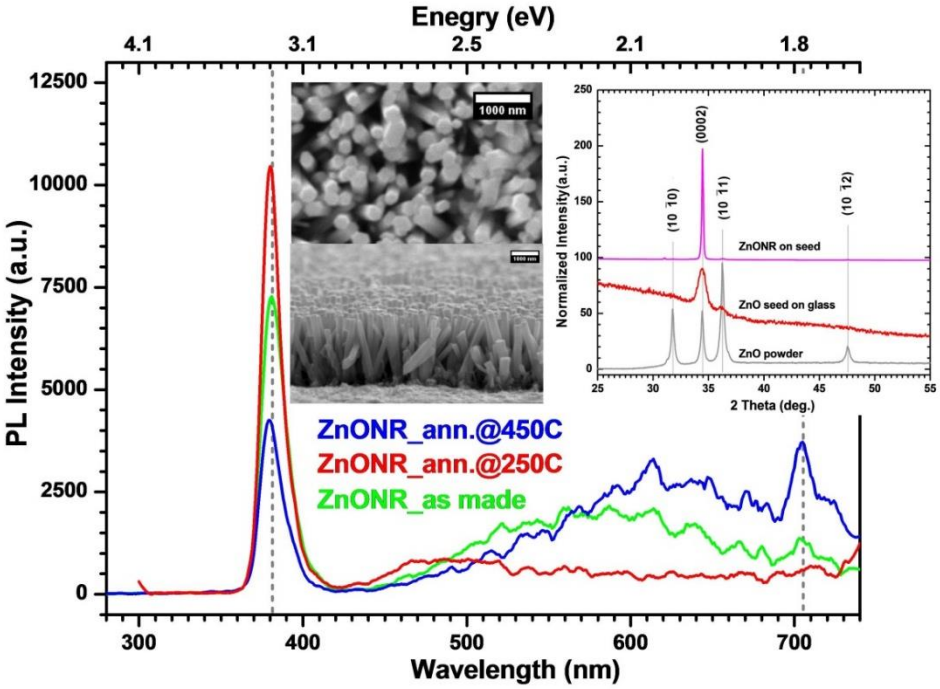
(a) Mott-Schottky plot of Cu_2O (n- and p- type) grown on ITO (b) An approximate band diagram with the estimated quasi Fermi-energy level for donor and acceptor respectively



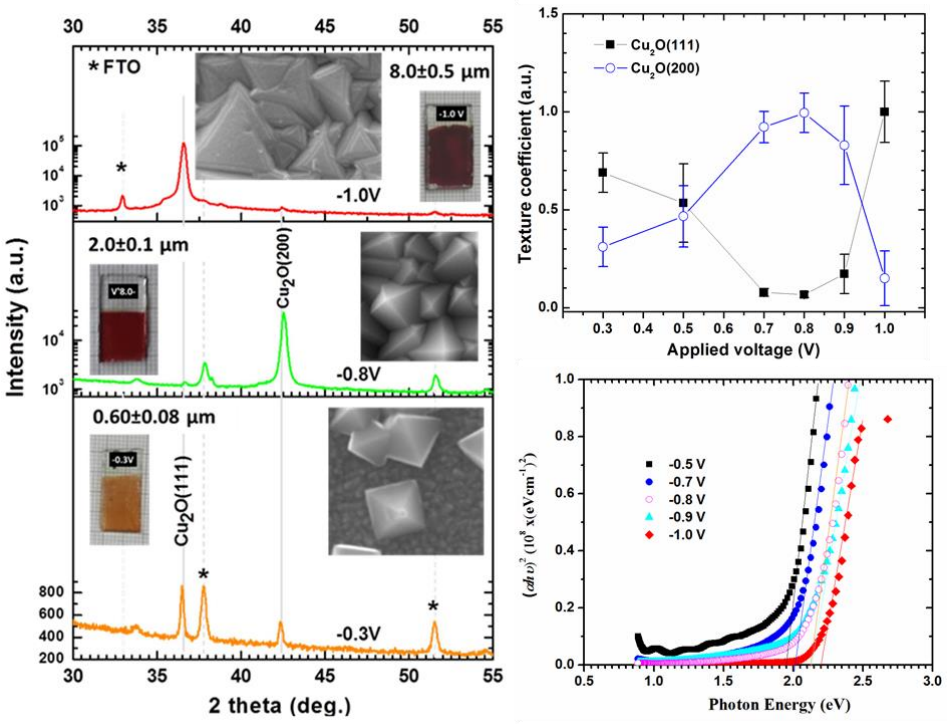
EQE (IPCE) of a typical Cu_2O thin film grown on ITO (Inset: AFM image)

POST-Ph.D. Research Highlights

Energy Conversion and Storage Research, Industrial Physics Division, BCSIR Laboratories, Dhaka



Defect-free vertically aligned ZnO Nanorods by hydrothermal method
(Good quality ZnO NRs possible at low process tempt, < 250C)
ZnO NRs possess a well-defined hexagonal prism morphology



Electrodeposited Cu_2O photocathode with tuneable morphology, orientation and optical bandgap.

ZnO related recent publication: click 1, 2, 3, 4

Cu_2O related recent publication: click 1, 2 (2′)