

Progress in anion-doping of copper iodide thin films

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Copper iodide (CuI) is promising p-type, wide-bandgap semiconductor. Here, we report on the anion-doping of CuI thin films for optoelectronic device applications. The CuI thin films were synthesized and then doped with Sulfur (S) or Bromine (Br) by using chemical vapor reaction method. The carrier concentration can be modulated within a wide range, up to 10^{22} cm^{-3} by S-doping or down to the order of 10^{17} cm^{-3} by Br-doping. These doped-CuI thin films presented high optical transparency covering a wide spectra range from visible-light to far infrared region. The photoresponse properties of the doped-CuI/Si heterojunctions has been investigated