OAK RIDGE NATIONAL LABORATORY
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Method of Manufacturing Tin-Doped Indium Oxide Nanofibers

Disclosure Number

201303091

Technology Summary

The present invention comprises a new sol-gel precursor chemistry that will form flexible tin-doped indium oxide (ITO) nanofibers at diameters of 50-400nm. ITOs are of fundamental interest for the modern electronics industry because of the need of transparent electrodes in devices such as solar cells displays, organic light- emitting diodes, thin-film transistors, antistatic coating, and EMI shielding. Although there is a high potential and large application spectrum, the poor flexibility and brittleness of ITO thin films limit extensive utilization. Another drawback is the strong reflection of light when used in thin film form, mainly due to preferred morphological orientation. To address these limitations, the invention takes advantage of microstructure and processing characteristics of the inorganic precursors to make a conductive, flexible, and stretchable ITO nanofiber web, with significantly reduced reflectivity.

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