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DC magnetron sputtered aligned ITO nano-rods with the influence of varying oxygen pressure

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Research Highlights:

- ITO nanorods were deposited by placing the substrate at three different locations inside the chamber.
- Films were found to be crystalline owing to secondary thermal effect when oxygen pressure is varied.
- Due to varying oxygen pressure, morphology and transport properties changed significantly.
- The position of the substrates plays imperative role in achieving quality films which is to be optimized for every sputtering unit to achieve best TCO film.

Abstract

Aligned Nano rods of transparent conducting indium tin oxide (ITO) were deposited on glass substrates using dc magnetron sputtering technique from an ITO alloy target at two different oxygen pressures placing the substrates at three different lateral positions inside the chamber. The (4 4 0) oriented ITO thin films at optimal deposition conditions with high transmittance, low sheet resistance, good crystallinity and novel morphology was obtained

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