Transparent conductive oxide (TCO) electrodes are finding increasing application in photovoltaics, displays, and other optoelectronic devices.

Sn-doped indium oxide (ITO)-based sol-gel ink was developed for patterning planar, spanning, and three-dimensional TCO microelectrode arrays.

Direct-write assembly is a robust printing approach for creating 1D to 3D architectures composed of filamentary features.

This assembly method opens new avenues for fabricating printed electronic and optoelectronic devices in unusual layouts.