

**Moisture and Oxygen Induced Enhancement of the Conductivity in LiTFSI Doped
spiro-OMeTAD films**

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Thin films of spiro-OMeTAD doped by LiTFSI were studied under controlled environments of H₂O vapor, O₂ and ambient air using current-voltage (I-V) measurements, x-ray photoelectron spectroscopy (XPS), ultraviolet photoelectron spectroscopy (UPS). I-V measurements show that exposing the LiTFSI doped films to H₂O vapor leads to irreversible increased conductivity, whereas the O₂ exposed films show reversible enhanced conductivity. XPS results show that H₂O is the constituent component in ambient air that makes the LiTFSI dopants to re-distribute across the spiro-OMeTAD films.