

## SI document

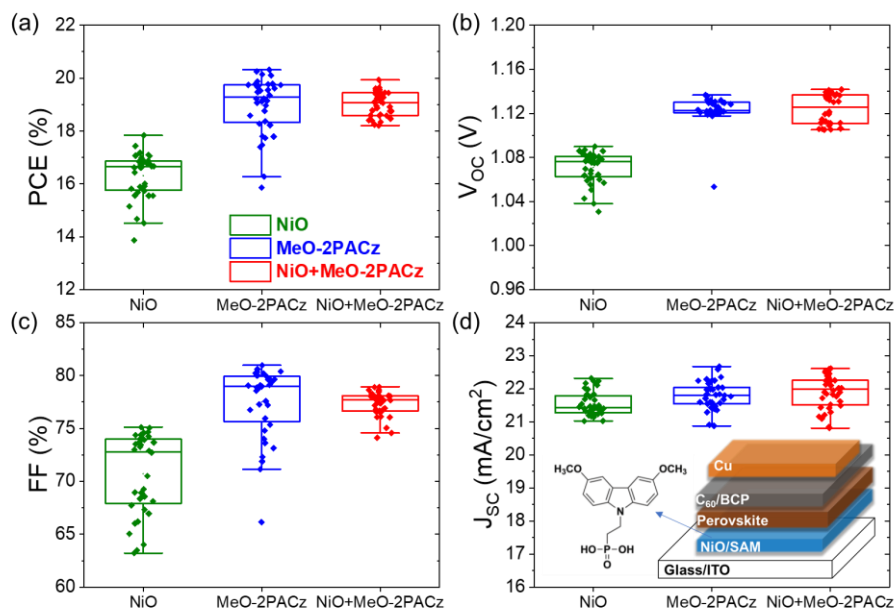


Figure 1. Box charts of PV parameters adopting plasma-ALD NiO and MeO-2PACz. Data are collected from 36 devices (active area of  $0.16 \text{ cm}^2$ ).

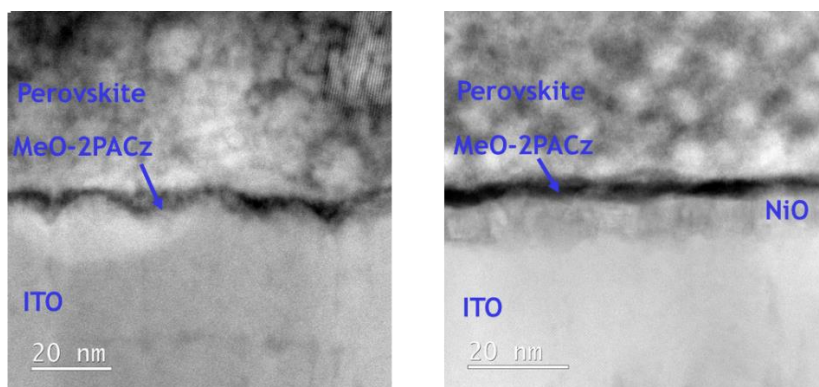


Figure 2. High-angle annular dark-field images of a cross-section of (left) ITO/MeO-2PACz device and (right) ITO/NiO/MeO-2PACz.

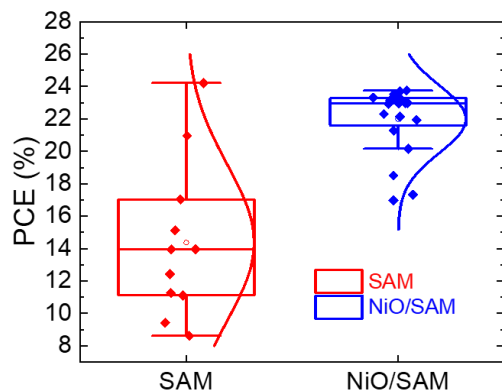


Figure 3. Box chart of the efficiency of the tandem device with ITO/SAM and ITO/NiO/SAM as tunnel junctions. Data are collected from 22 devices (active area of  $0.25 \text{ cm}^2$ ).