

## Supporting information

### All Solution-Processed Hafnium Rich Hybrid Dielectrics for Hysteresis Free Metal-Oxide Thin-film Transistors

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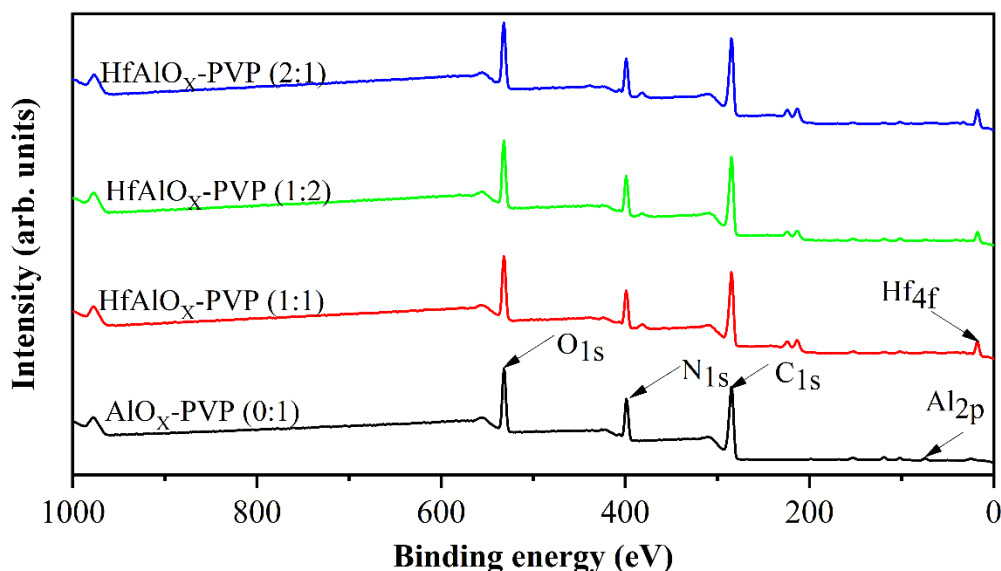


Fig.S1. XPS survey scan spectra of AlO<sub>x</sub>-PVP and HfAlO<sub>x</sub>-PVP hybrid thin films.

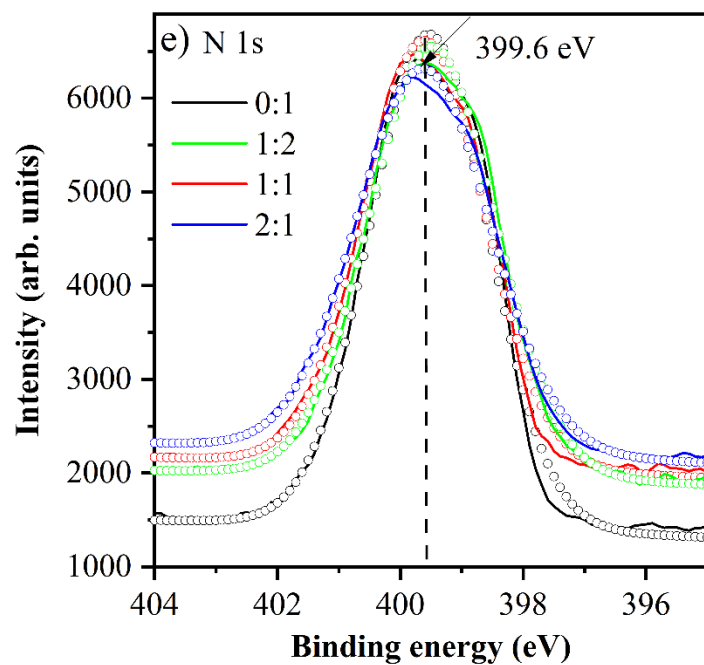


Fig.S2 XPS spectra of AlOx-PVP and HfAlOx-PVP hybrid thin films f) N 1s spectra.

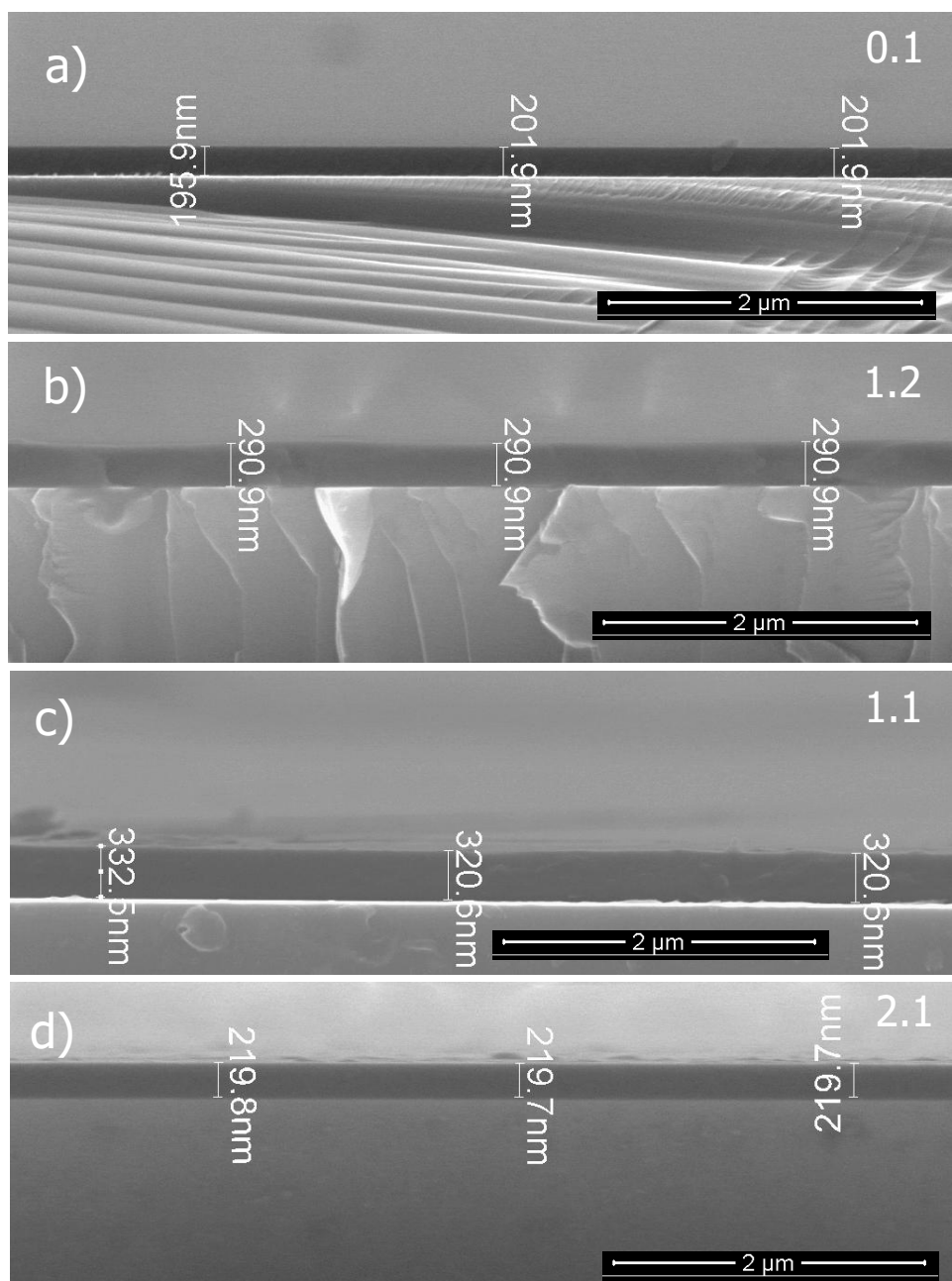


Fig.S3 FESEM cross section images of AlO<sub>x</sub>-PVP and HfAlO<sub>x</sub>-PVP hybrid dielectric thin films

a) 0:1 b) 1:2 c) 1:1 and d) 2:1.