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Supplementary Information

# Solution-processed $SiO_2$ gate insulator formed at low temperature for zinc oxide thin-film transistors

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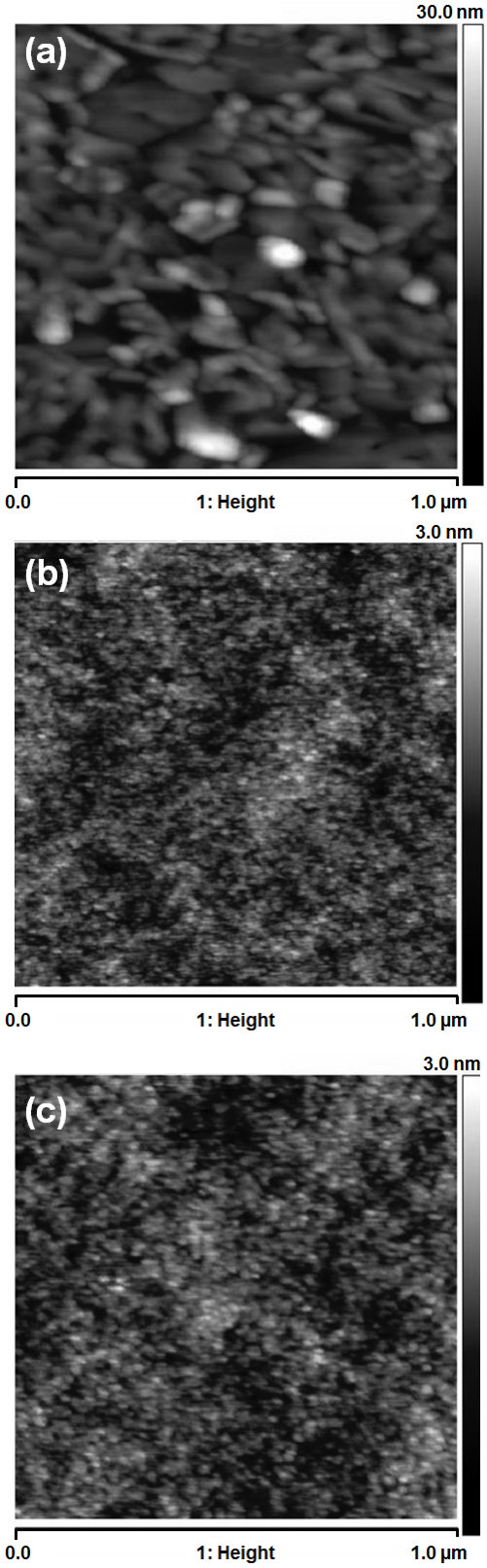


Fig. S1. AFM topography images of (a) evaporated Al (b) PHPS spin-coated onto Al and (c) pre-annealed PHPS film following spin-coating on Al.

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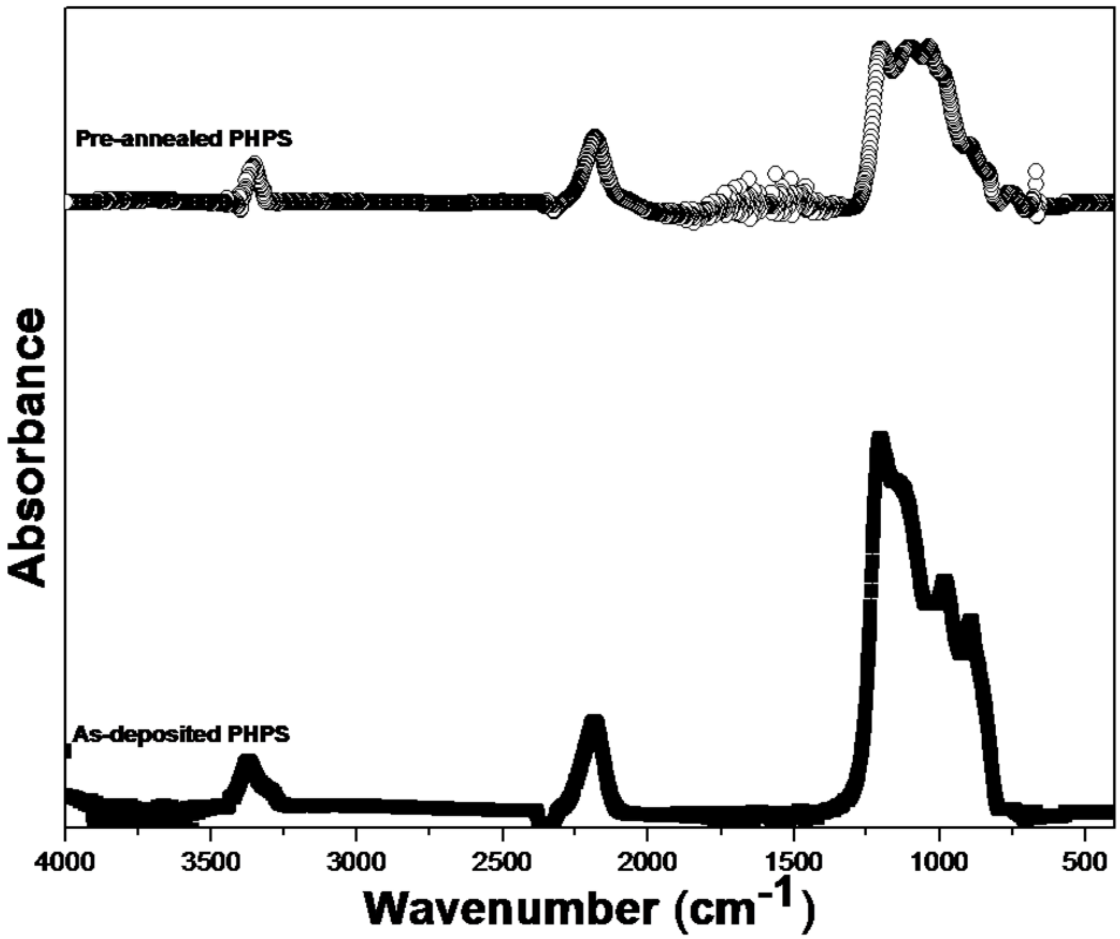


Fig. S2. FTIR spectra of spin coated PHPS before and after pre-annealing. These spectra were recorded using a Nicolet Nexus spectrometer with a liquid nitrogen cooled HgCdTe crystal detector. The background spectrum was measured by collecting 128 scans between 400 $cm^{-1}$ and 4000$cm^{-1}$ using an Al coated glass slide.

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| Group vibration | Wavenumber ($cm^{-1}$) |
|---|---|
| Si-O rock | 460 |
| Si-N stretch in Si-N-Si | 920,840 |
| Si-O stretch | 1060 |
| Si-O-Si stretch | 1163 |
| N-H bend | 1180 |
| Si-H stretch | 2160 |
| N-H stretch | 3360 |

Table. S1. IR peak assignments.[1-5]

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