

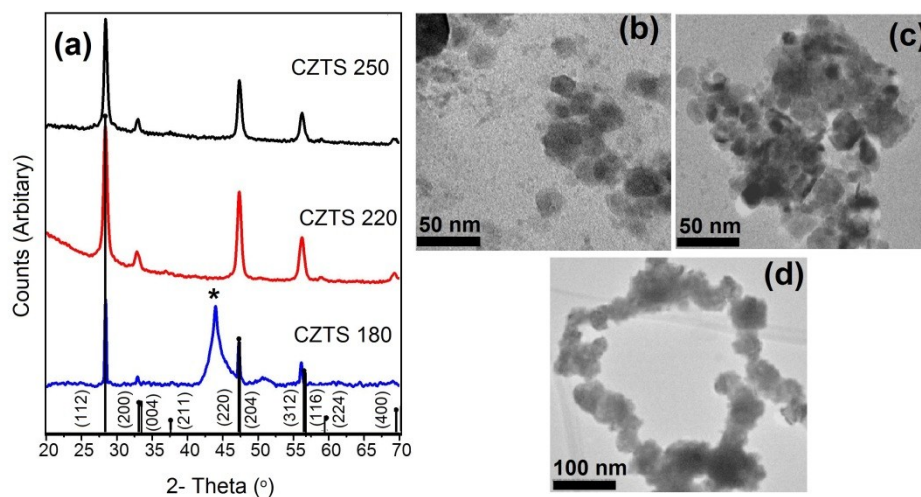
## Nanoparticles of $\text{Cu}_2\text{ZnSnS}_4$ as Performance Enhancing Additives for Organic Field-Effect Transistors

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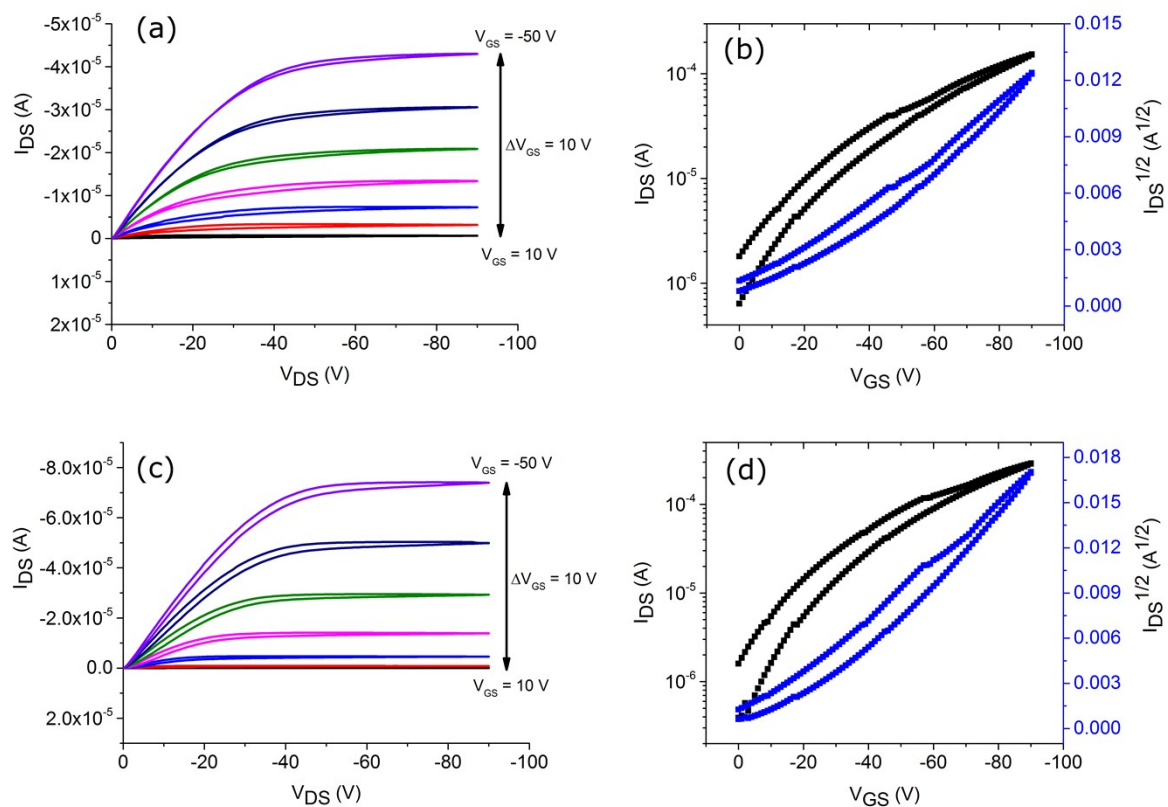
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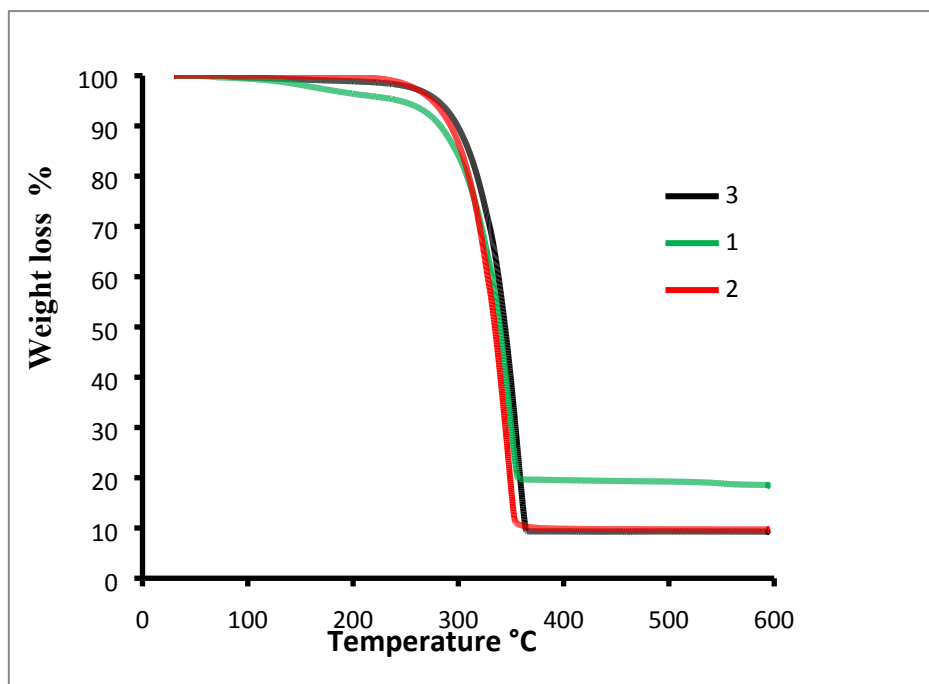


**Figure S1:** (a) are the p-XRD patterns of the CZTS nanoparticles synthesised at 180, 220 and 250°C. Peaks are indexed according to the Kesterite structure (ICDD: 04-015-0223) of CZTS (stick patterns). The \* mark shows unknown peaks. (b)-(d) are the TEM images of CZTS nanoparticles synthesised at 180, 220 and 250°C respectively.

Supplementary Information section



**Figure S2:** Output and transfer characteristics (left and right columns, respectively) for OFETs fabricated using P3HT + 5% oleylamine [(a) and (b)] and P3HT + 10% oleylamine [(c) and (d)]



**Figure S3:** TGA analysis of the samples  $[\text{Cu}(\text{S}_2\text{CNET}_2)_2]$  (**1**),  $[\text{Zn}(\text{S}_2\text{CNET}_2)_2]$  (**2**) and  $[\text{nBu}_2\text{Sn}(\text{S}_2\text{CNET}_2)_2]$  (**3**). Analyses of the samples were carried out by a Seiko SSC/S200 model from 10 to 600 °C with a heating rate of 10 °C min<sup>-1</sup> under nitrogen.