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Supporting Material

Recovery of gold from e-waste via food waste byproducts

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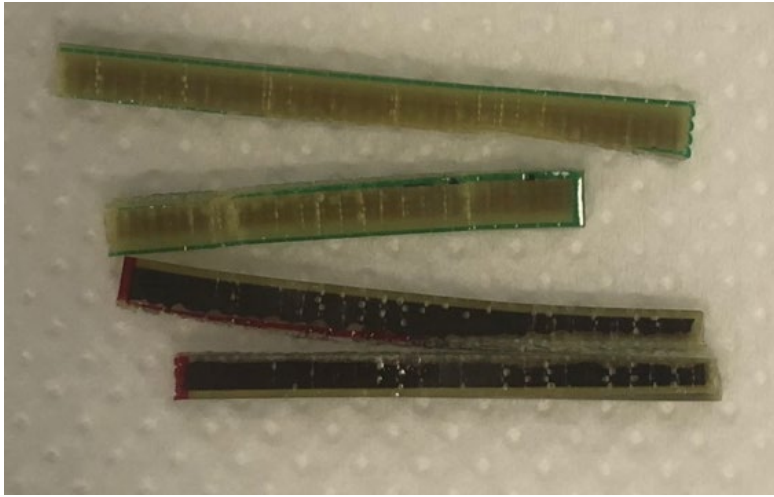


Fig. SM1. Cut edges after gold peeling.

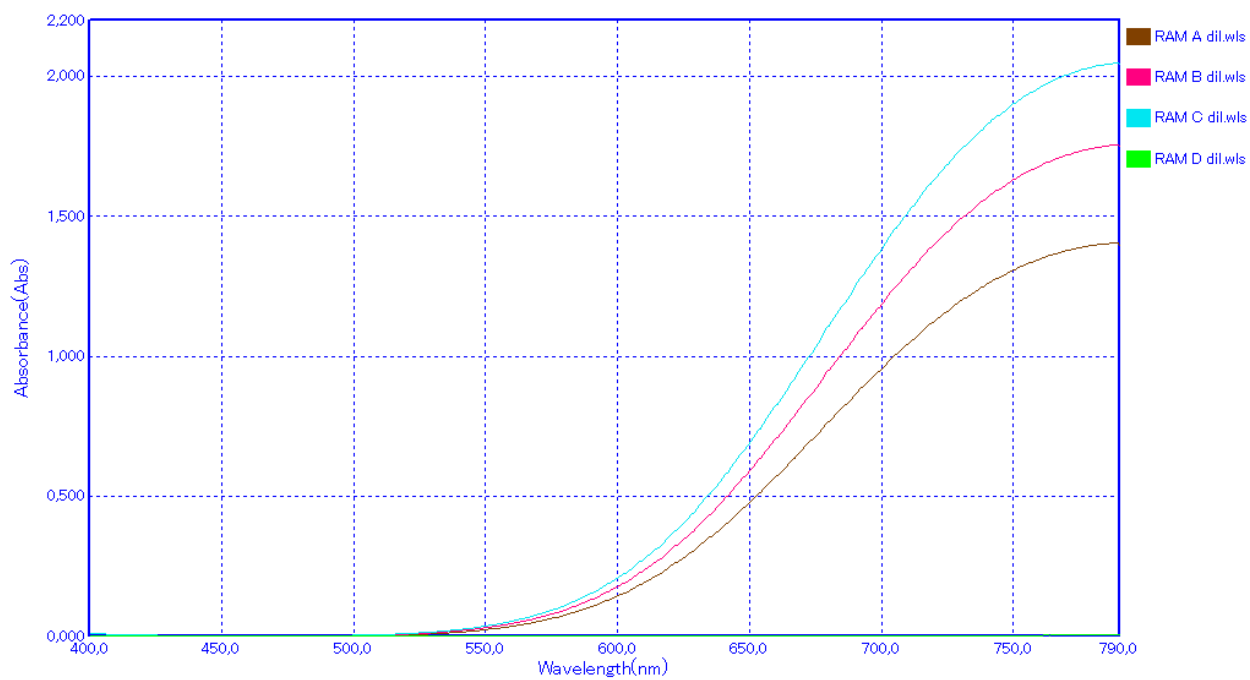


Fig. SM2. UV-VIS spectra of the mixtures A (brown), B (red), C (light blue), and D (light green) as explained in Table 1, diluted 1:3 with the reagent mixture.

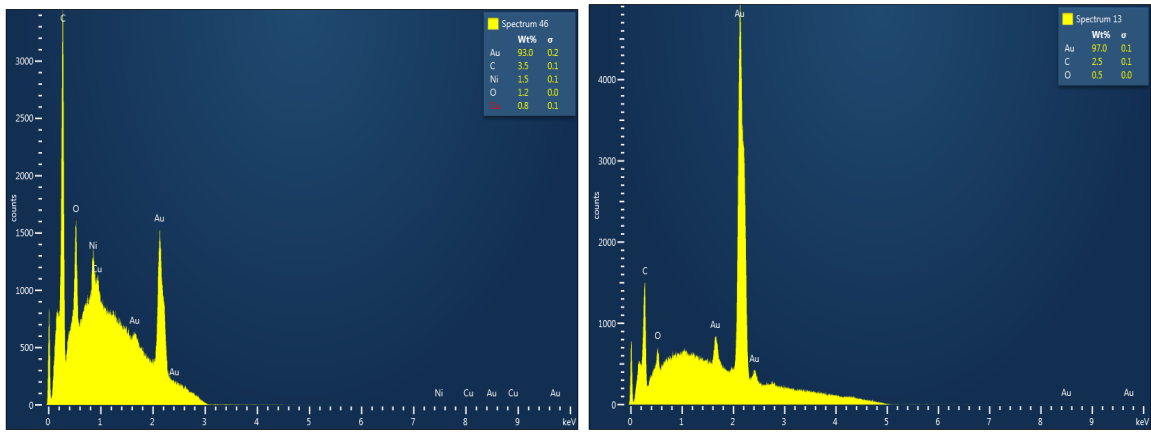


Fig. SM3 EDS of pristine edges (left) and peeled flakes (right).

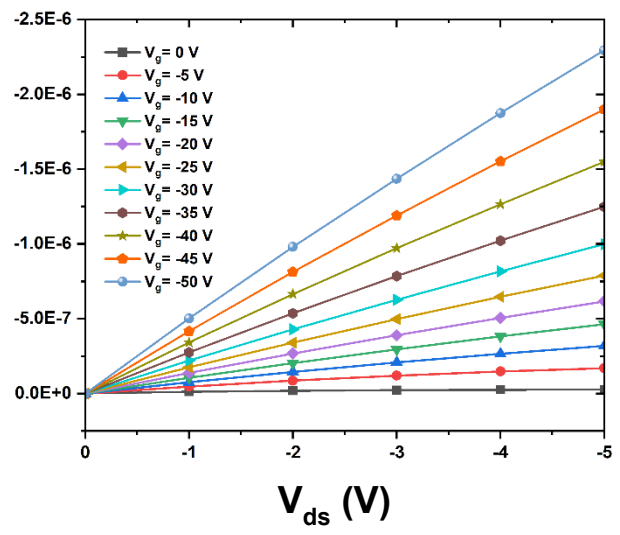
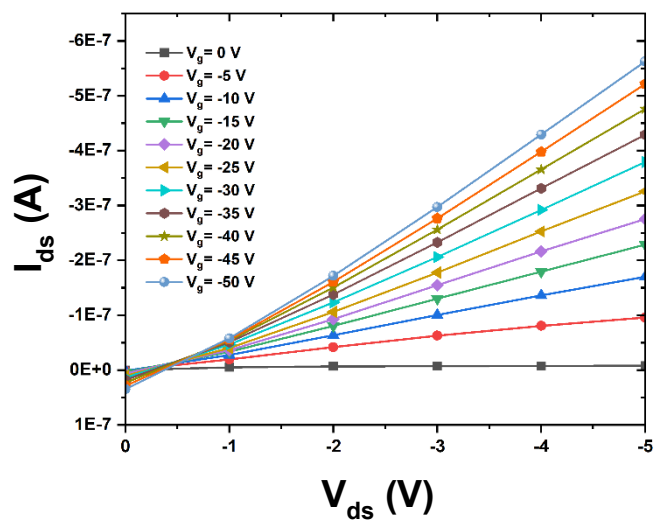


Fig. SM4 Zoomed regions from the output curves reported in Fig. 4 at low V_{ds} for P3HT FETs making use of source and drain electrodes thermally evaporated from pellets of a) recycled gold and b) commercial gold.

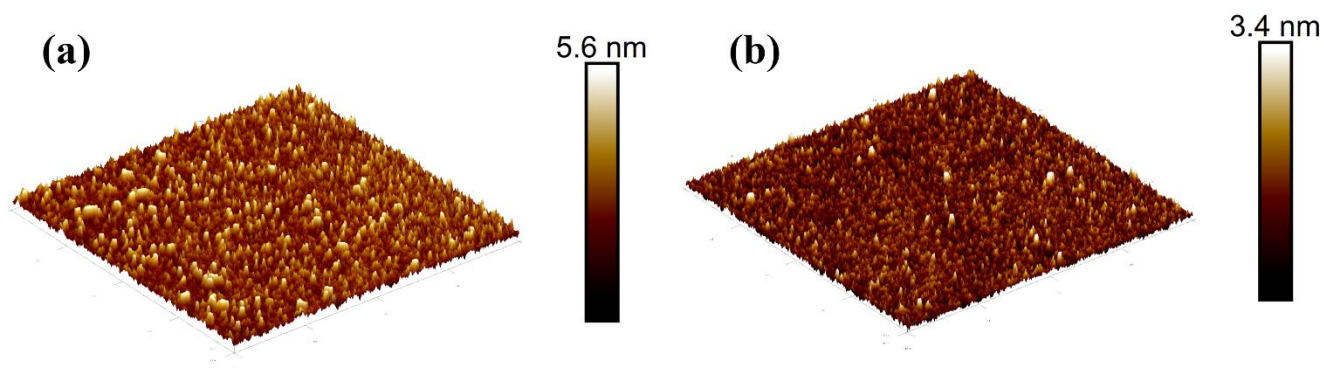


Fig. SM5 3D Atomic force microscopy images ($2\mu\text{m} \times 2\mu\text{m}$) of e-beam evaporated Au from a) commercial and b) recycled source.

Table SM1. Binding energies and atomic percentages obtained from the XPS analysis performed on peeled Au and thermally evaporated recycled Au electrodes.

| Element | Peeled Au (flakes) | | Au electrodes | |
|----------------------------|---------------------|--------------------|---------------------|--------------------|
| | Binding Energy (eV) | Atomic percent (%) | Binding Energy (eV) | Atomic percent (%) |
| C 1s | 285.00 | 56.47 | 285.00 | 27.19 |
| O 1s | 532.00 | 18.60 | 533.00 | 39.01 |
| Sn 3d | 487.00 | 0.44 | 487.00 | 0.20 |
| Cu 2p_{3/2} | 932.00 | 0.52 | 933.00 | 0.08 |
| N 1s | 400.00 | 5.24 | 401.00 | 0.76 |
| Au 4f | 84.00 | 18.64 | 84.00 | 10.07 |
| I 3d_{5/2} | 619.00 | 0.09 | - | - |
| Ca 2s | - | - | - | - |
| Ba 3d_{5/2} | - | - | - | - |
| Ti 2p | - | - | 459.00 | 0.88 |
| Si 2p | - | - | 104.00 | 21.81 |