

Supplementary Information

Fabrication of Planar Perovskite Solar Cells using Ternary Metal Oxide Nanocomposite as Hole Transporting Material

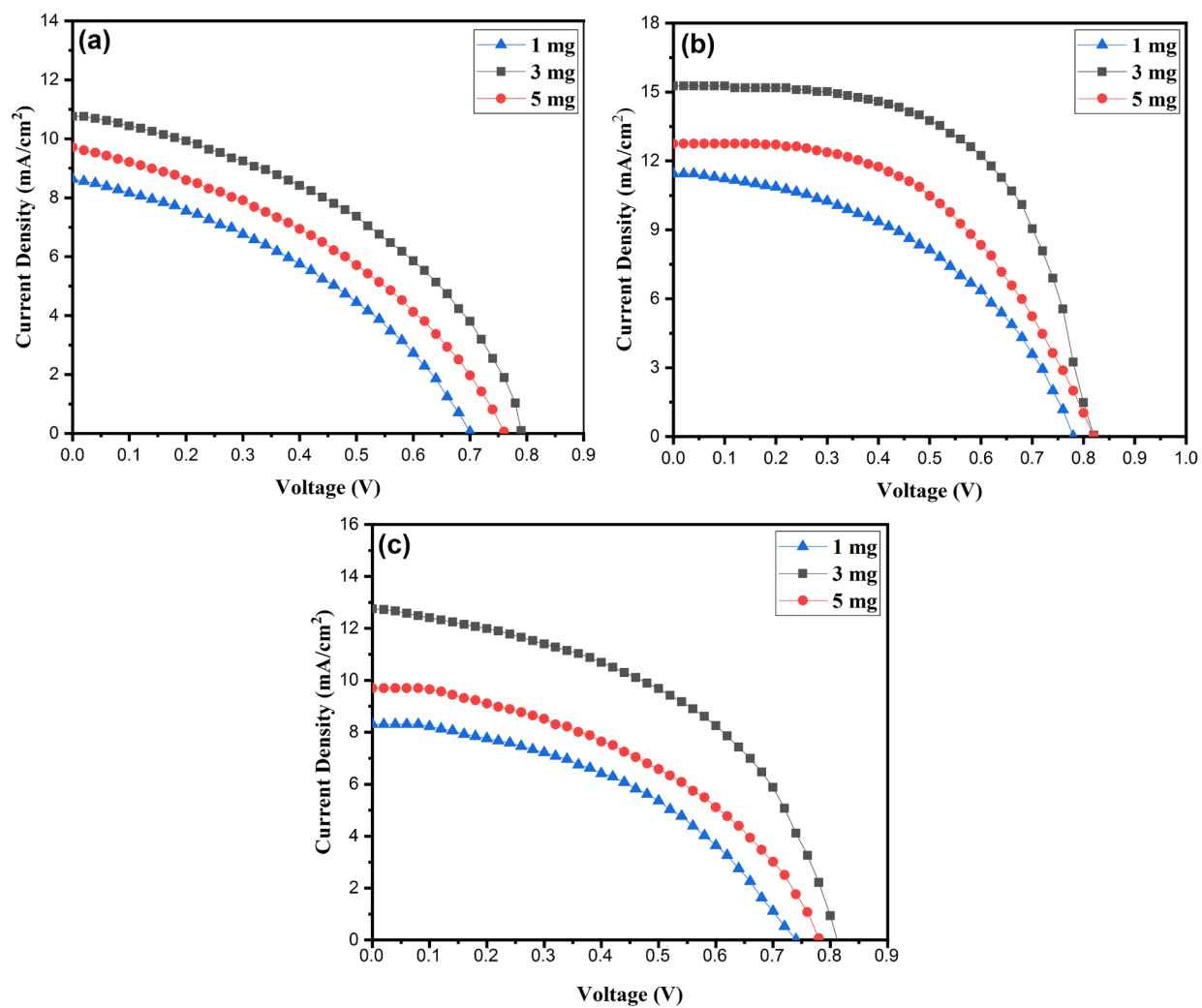


Figure S1. J-V curve of H1 based PSC device a) 1000 rpm b) 1500 rpm and c) 2000 rpm spin speed

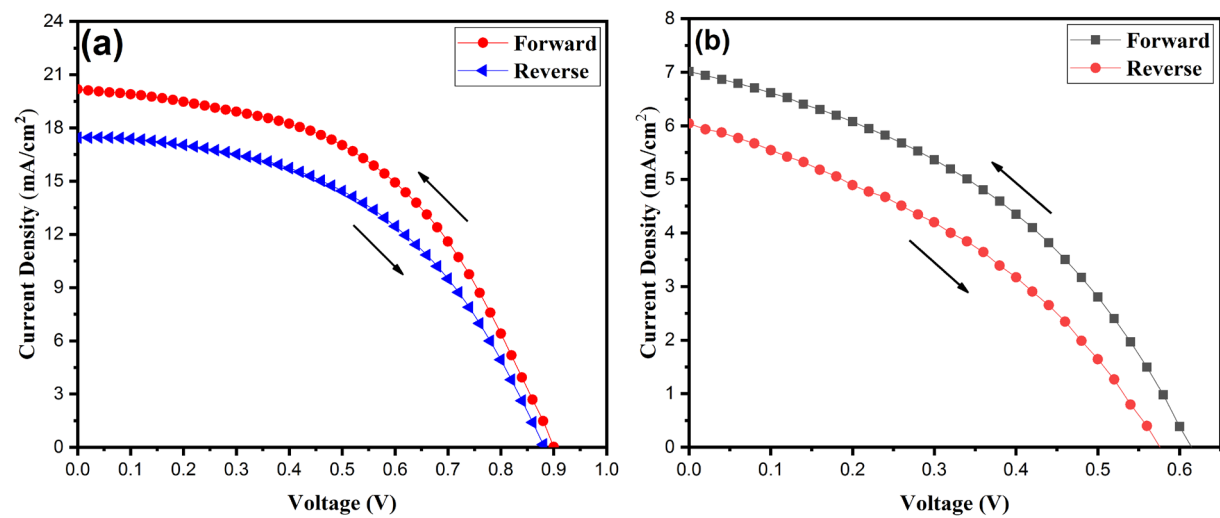


Figure S2. Forward and Reverse J-V curve for a) P3HT based device b) HTM-free device

Table S1: Photovoltaic parameters for H1 based PSC device

| HTM | Spin speed (rpm) | Concentration (mg/mL) | V_{oc} (V) | J_{sc} (mA/cm²) | FF | PCE (%) |
|------------|-----------------------------|----------------------------------|-------------------------------|---|-----------|--------------------|
| H1 | 1000 | 1mg | 0.7 | 8.6 | 0.37 | 2.22 |
| | | 3mg | 0.76 | 10.76 | 0.44 | 3.59 |
| | | 5mg | 0.79 | 9.70 | 0.37 | 2.83 |
| | 1500 | 1mg | 0.77 | 11.33 | 0.46 | 4.01 |
| | | 3mg | 0.82 | 15.17 | 0.59 | 7.32 |
| | | 5mg | 0.81 | 12.16 | 0.48 | 4.96 |
| | 2000 | 1mg | 0.74 | 8.2 | 0.44 | 2.66 |
| | | 3mg | 0.80 | 12.68 | 0.48 | 4.86 |
| | | 5mg | 0.79 | 9.71 | 0.45 | 3.45 |