Supporting Information

Wet-Milled Transition Metal Oxide Nanoparticles as Buffer Layers for Bulk Heterojunction Solar Cells

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Figure S1. The comparison of SEM images for (a) raw V$_2$O$_5$; (c) raw WO$_3$ and (b) V$_2$O$_5$; (d) WO$_3$ after grinding. It can be found that the particle size of the V$_2$O$_5$ and WO$_3$ decreases significantly after grinding for 240 min.
Figure S2. The XPS spectrum of the MoO$_3$ film cast from the as-prepared solution. Based on the survey spectrum, it can be found that the chemical composition is totally contributed from the MoO$_3$ powder without any impurity. This indicates that this solution–based method preserves the intrinsic electronic properties of MoO$_3$. 
Figure S3. (a) The effect of grinding time on cell performance (P3HT:PCBM) with MoO$_3$ as buffer layers; (b) the effect of MoO$_3$ solution concentration on the cell performance.