Supplementary Information

Mesoporous Scaffolds Based on TiO_2 Nanorods and Nanoparticles for Efficient Hybrid Perovskite Solar Cells

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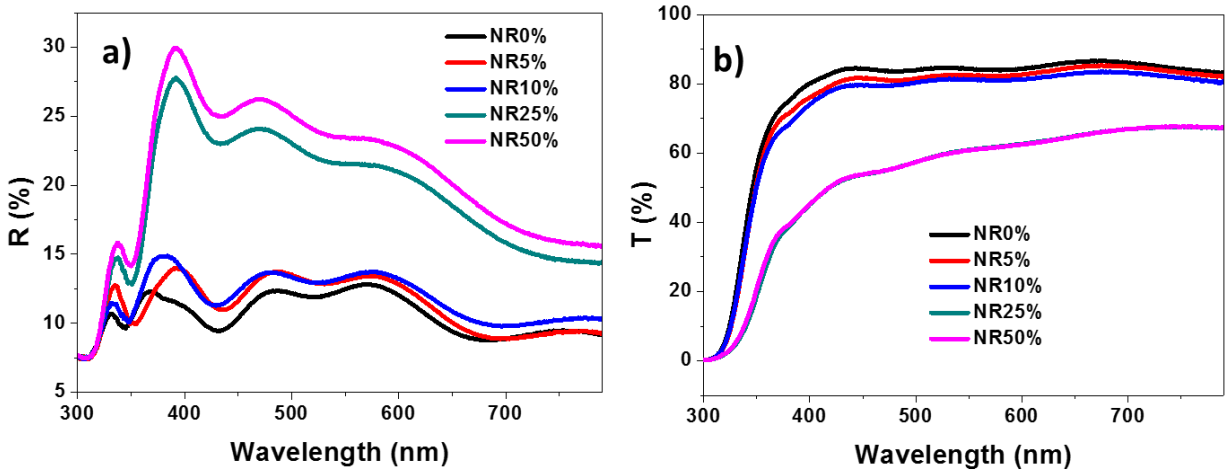

Figure S1. The reflection (a) and transmission (b) spectra of the five mesoporous structure (without infiltrated perovskite) in the interested wavelength range of 300 – 800 nm. As expected, as NR concentration is increased in the scaffold, the reflection is enhanced, and this is particularly true for the 25% and 50% structures. Therefore, these latter two have a significantly reduced transmission in the broad interested wavelength range of 400 – 800 nm. The 0% NR, 5% NR and 10% NR structures have similar transmission of around 80% in the wavelength range of 400-800 nm, but the scattering effect by incorporating a small amount of NRs is still discernible.

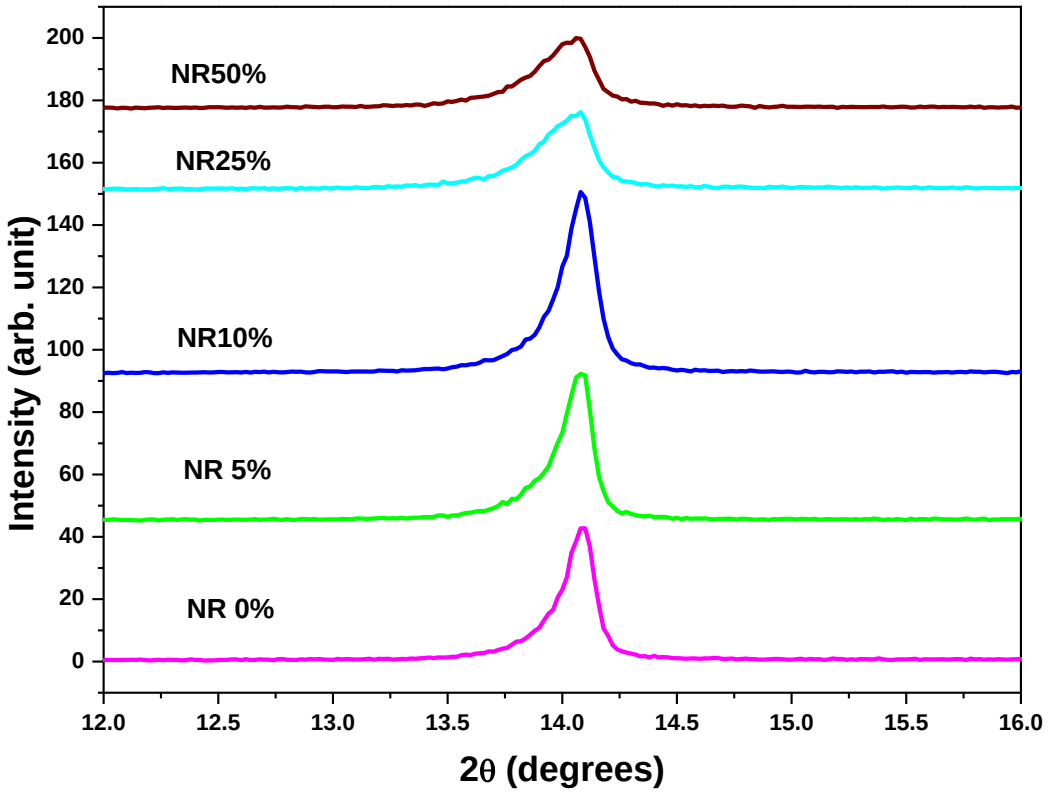

Figure S2. XRD (110) peak comparison of perovskite $CH_3NH_3PbI_3$ coated on five different scaffold layers. For these five samples, their relative (110) peak values are: 1, 1.12, 1.38, 0.57, 0.52. There is noticeable peak shape change for NR25% and NR50% samples, suggesting degradation of perovskite crystalline quality.