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Supplementary Information

Plasmonic, Interior-decorated, One-dimensional Hierarchical Nanotubes for High-efficiency, Solid-state, Dye-sensitized Solar Cells

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Figure S1. EF-TEM images of (a and b) thin CNF (diameter = 50 nm) with Au cores after a galvanic exchange reaction, (c) CNF@TNS, and (d) Au@CNF@TNS.

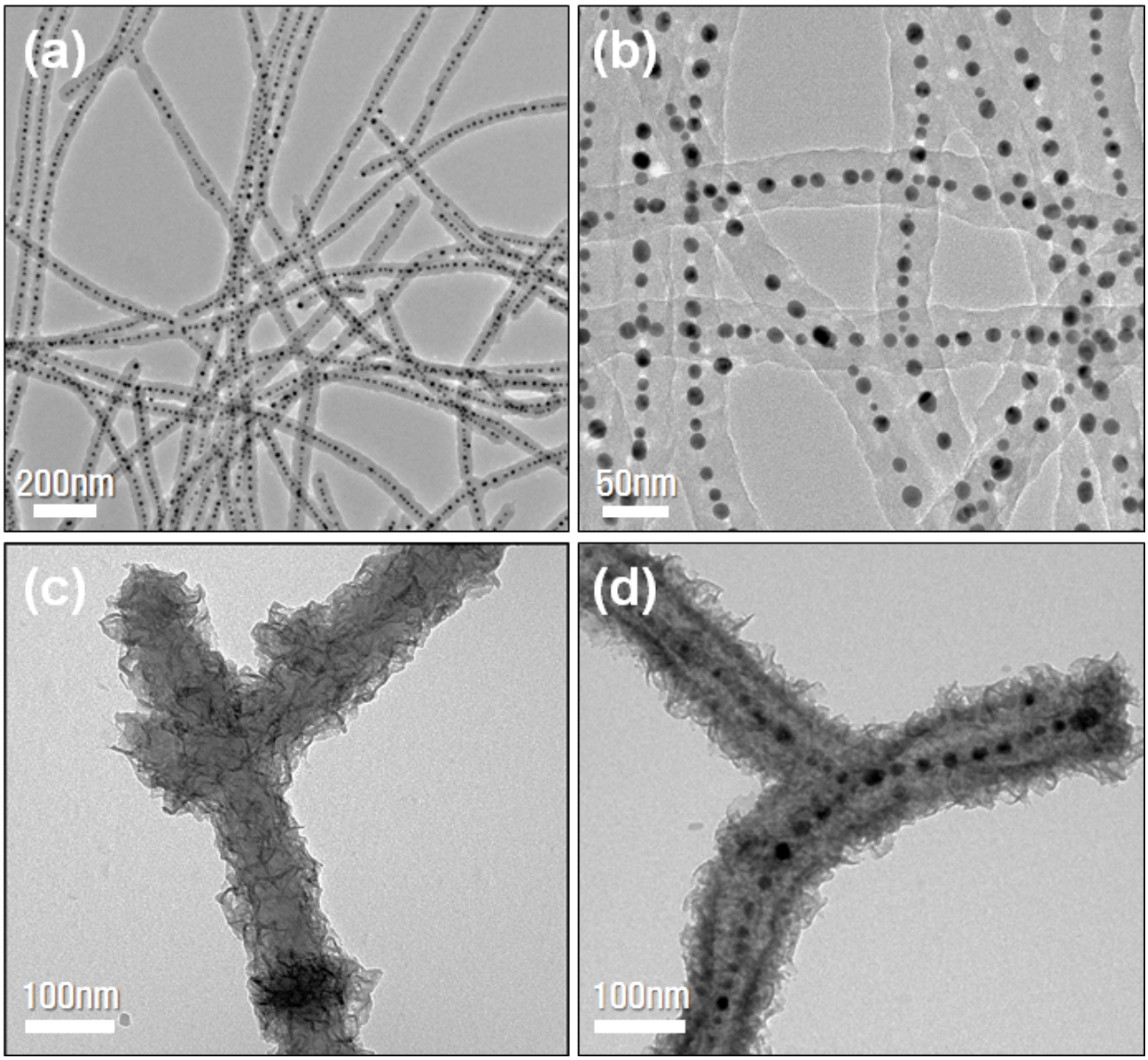

Figure S2. Energy-dispersive X-ray spectroscopy (EDX) analysis of Au@CNF with 50 nm diameter.

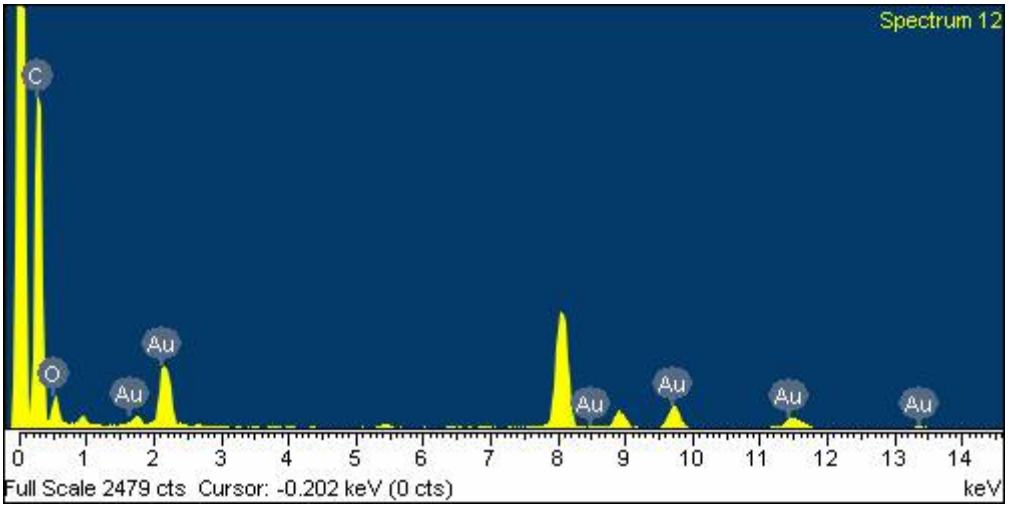

Figure S3. EF-TEM images of (a) thick CNF (diameter = 150 nm) with Te cores, (b) after removal of the Te core, (c) after the replacement reaction at 50 ^{o}C, and (d) after the replacement reaction at 100 ^{o}C.

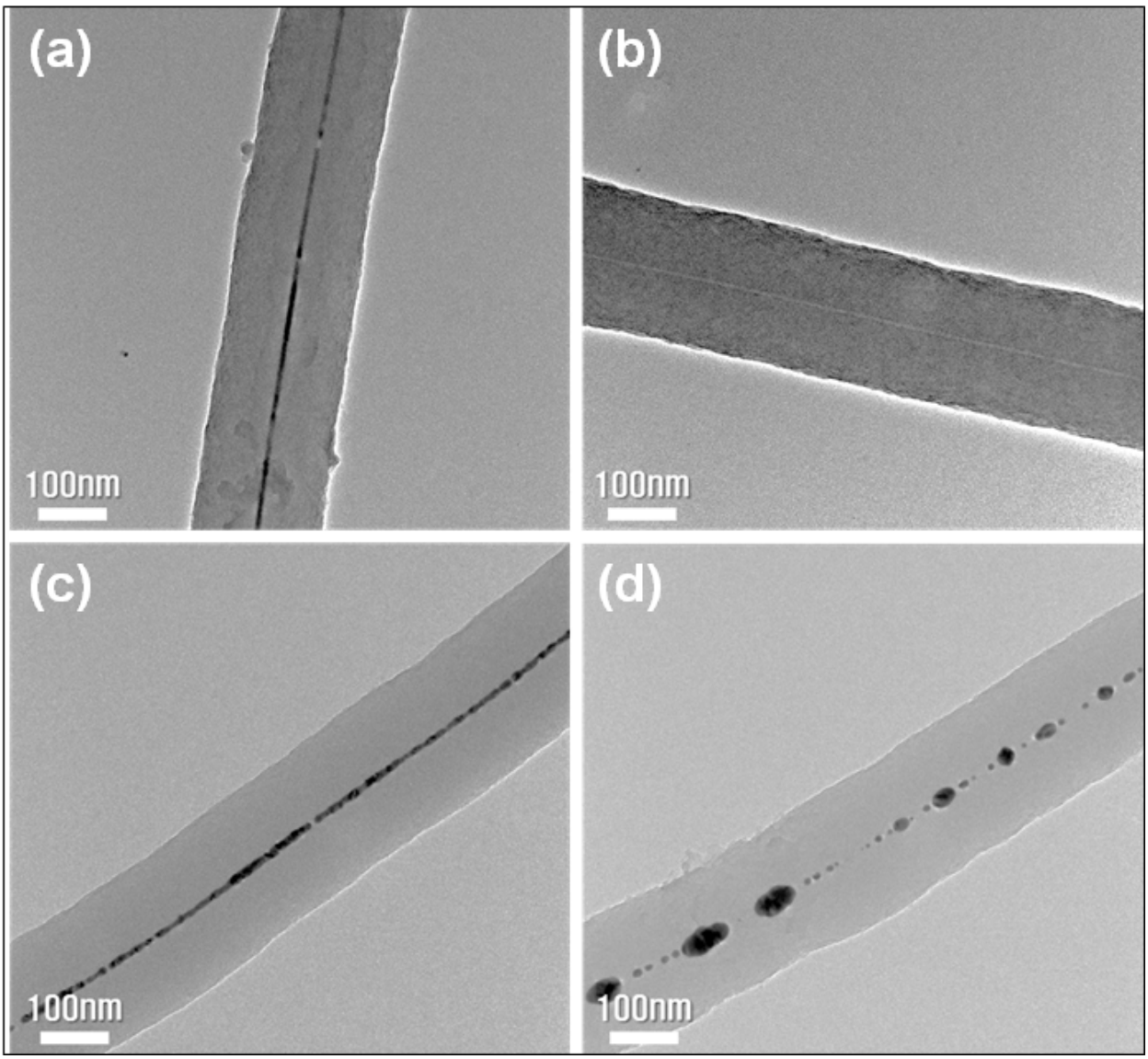

Figure S4. (a) Specific surface area by BET and (b) pore size distribution of BJH measurements of OM-T and OM-T/Au@TNS with different weight ratios.

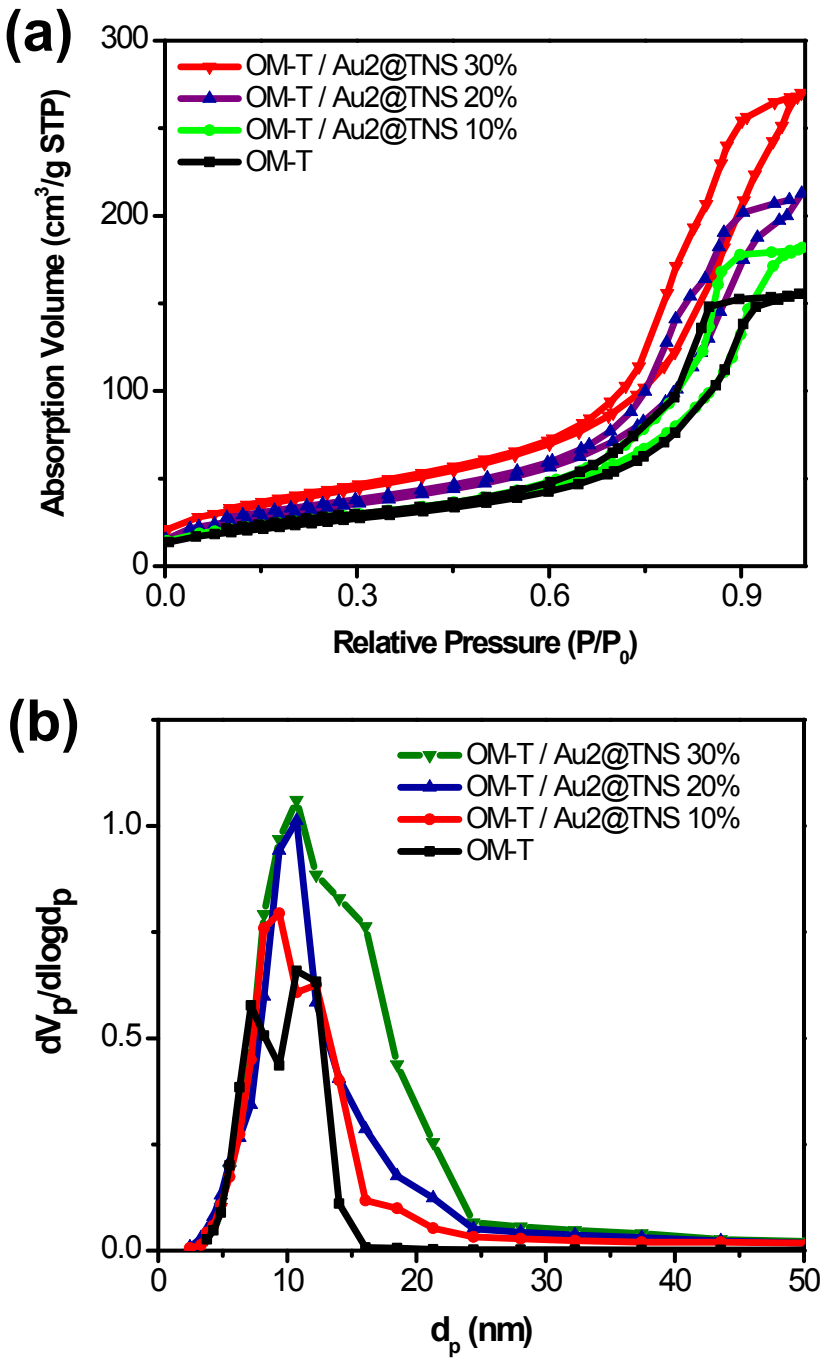

Figure S5. FE-SEM images of (a) thin CNF, (b) CNF@SnO_2, and (c and d) Au@SnO_2@TNS after removing CNF by high temperature annealing.

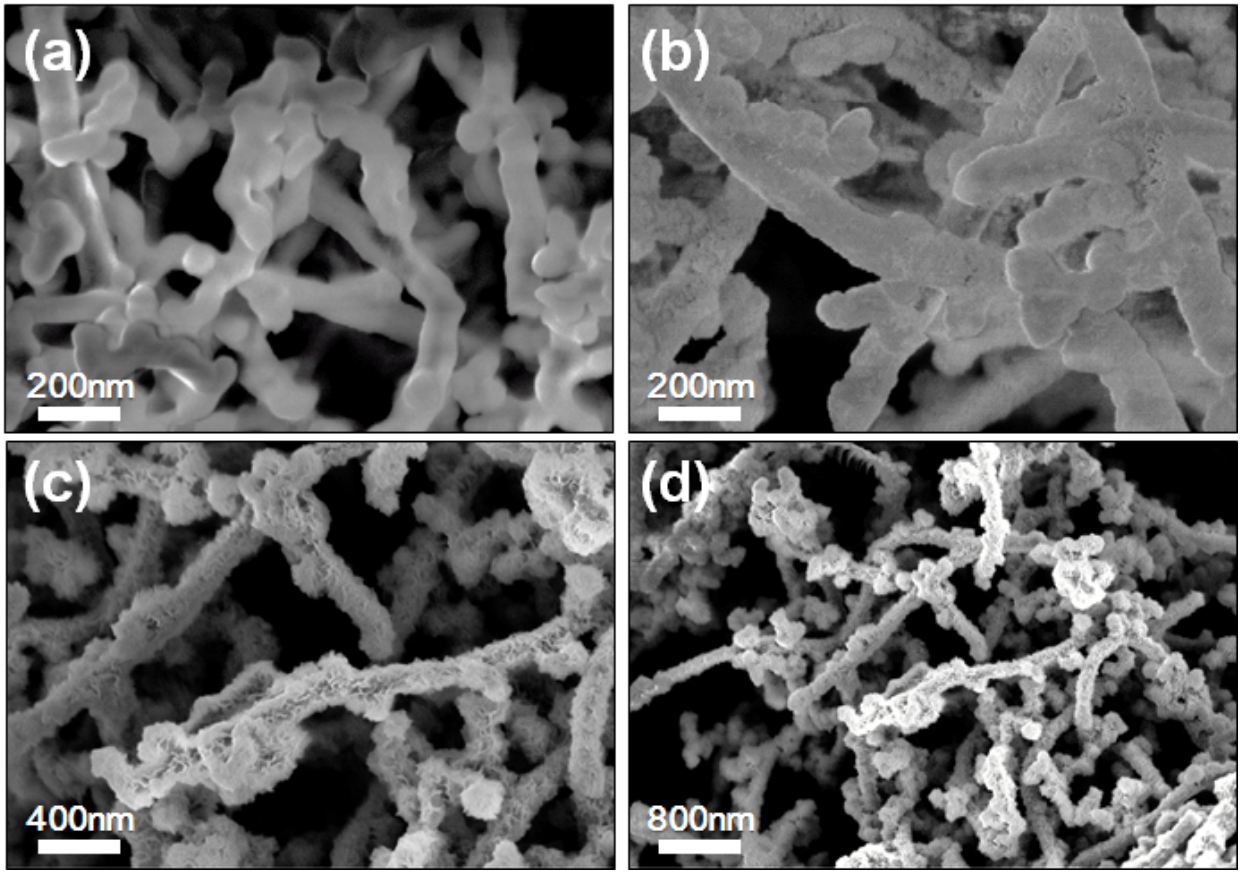

Figure S6. (a) Diffuse reflectance spectra of various photoanodes, (b) J-V curves, and (c) IPCE curves of ssDSSCs fabricated using OM-T photoanodes with different amounts of Au@SnO_2@TNS and a solid PEBII electrolyte at 100 mW cm^{-2}.

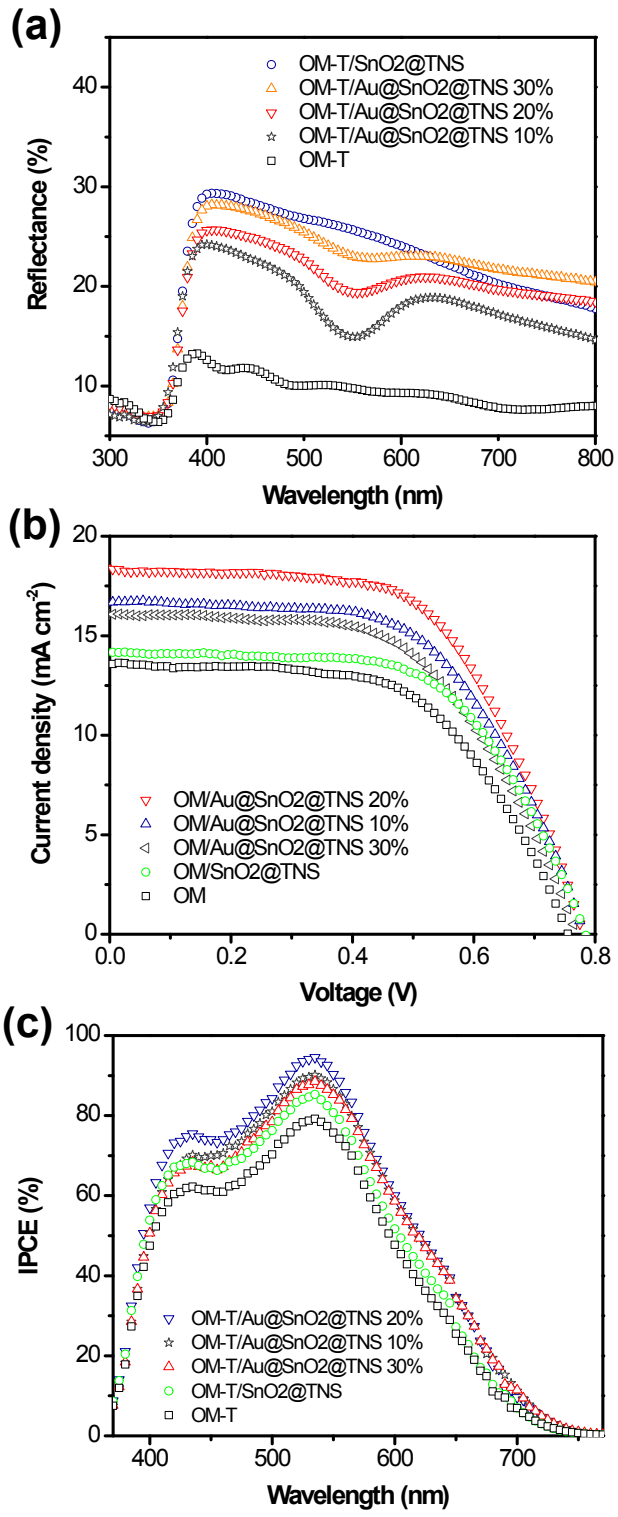

Figure S7. IPCE enhancement ratio (ΔIPCE / $IPCE_{OM-T}$) caused by the addition of plasmonic 1D TNSs with the IPCE of OM-T films**.**