Supporting Information

Asymmetric TMO–Metal–TMO Structure for Enhanced Efficiency and Long-term Stability of Si-Based Heterojunction Solar Cells

Yoon-Chae Jung [1], Young-Jin Yu [1], Yu-Kyung Kim [1], Jin Hee Lee [2], Jung Hwa Seo [3] and Jea-Young Choi [4,*]

[1] Department of Metallurgical Engineering, Dong-A University, Busan 49315, Republic of Korea
[2] Department of Chemical Engineering (BK21 Four Graduate Program), Dong-A University, Busan 49315, Republic of Korea
[3] Department of Physics, University of Seoul, Seoul 02504, Republic of Korea
[4] Department of Materials Sciences & Engineering, Dong-A University, Busan 49315, Republic of Korea
* Correspondence: cjy4395@dau.ac.kr

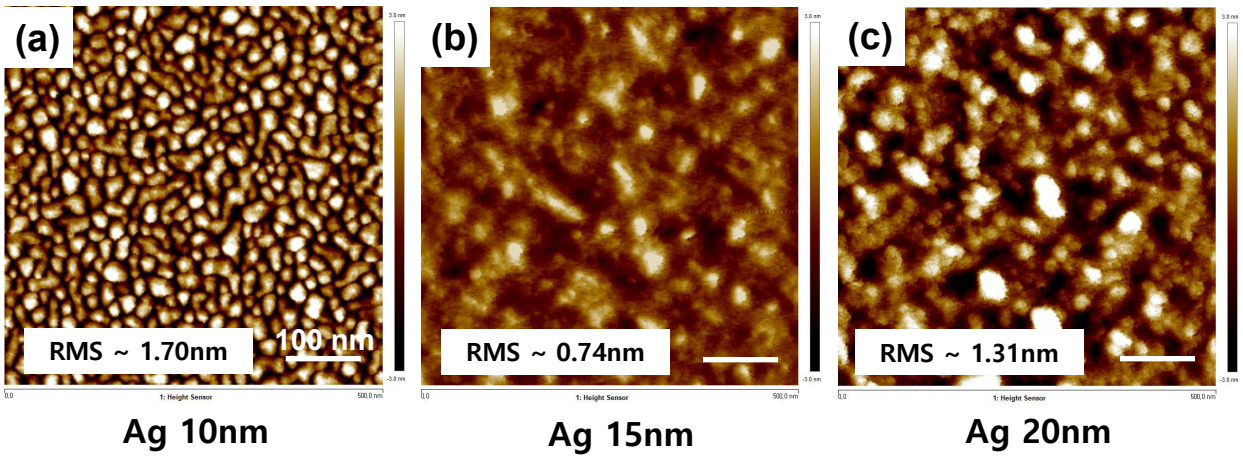

Figure S1. AFM images of Ag layers deposited on MO surface: (a) 10nm, (b) 15nm, and (c) 20nm.

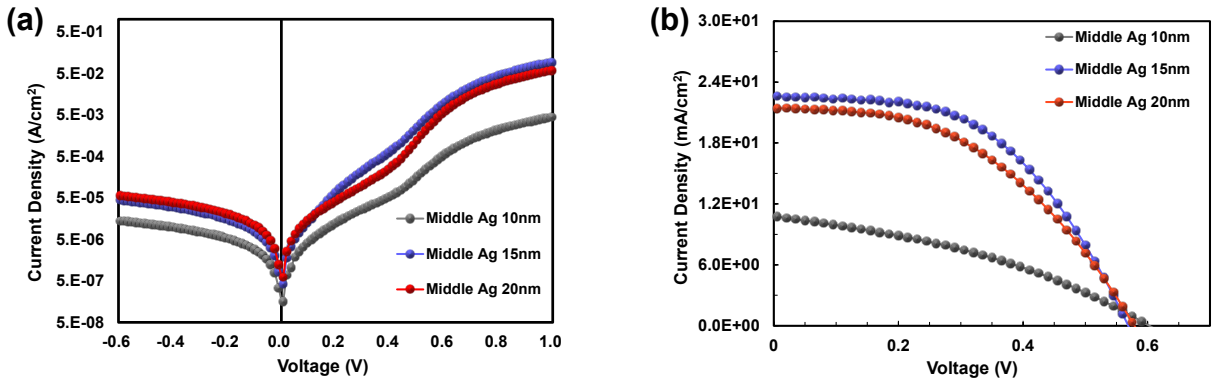

Figure S2. J–V curves of the TMT/Si HSCs according to the middle Ag layer thickness under (a) dark and (b) illumination (AM1.5) conditions.

Table S1. Solar cell characteristic parameters of the TMT/Si HSCs according to the middle Ag layer thickness under illumination (AM1.5) conditions.

MO/Ag/VO	J_{sc} (mA/cm^2)	V_{oc} (mV)	FF (%)	R_{sh} (Ω·cm^2)	R_s (Ω·cm^2)	PCE (%)
8 nm/10nm/55 nm	**10.79**	**603**	**36.10**	**10795**	**23.66**	**2.35**
8 nm/15 nm/55 nm	**23.24**	**574**	**56.78**	**23207**	**2.91**	**7.57**
8 nm/20 nm/55 nm	**21.44**	**579**	**46.04**	**21567**	**4.72**	**5.72**