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Data Article

Integrated spectral photocurrent density and reproducibility analyses of excitonic ZnO/NiO heterojunction

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ABSTRACT

In this data article, the excitonic ZnO/NiO heterojunction device (Patel et al., 2017) [1] was measured for the integrated photocurrent density and reproducibility. Photograph of the prepared devices of ZnO/NiO on the FTO/glass is presented. Integrated photocurrent density as a function of photon energy from the sunlight is presented. Quantum efficiency measurement system (McScienceK3100, Korea) compliance with International Measurement System was employed to measure ZnO/NIO devices. These data are shown for the 300–440 nm of segment of the sunlight (AM1.5G, http://rredc.nrel.gov/solar/spectra/am1.5/). Reproducibility measure of ZnO/NiO device was presented for nine devices with the estimated device performance parameters including the open circuit voltage, short circuit current density, fill factor and power conversion efficiency.

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Specifications Table

Subject area	*Physics, Electrical Engineering*
More specific subject area	*Solar cells*
Type of data	*Figures, Table*
How data was acquired	*Quantum efficiency measurement system (McScienceK3100, Korea)* *Potentiostat/Galvanostat (ZIVE SP1, WonA Tech, Korea)*
Data format	*Analyzed*
Experimental factors	*J-V: Linear sweep voltammetry, positive direction, scan range 0–0.8 V, compliance auto, scan resolution 5 mV.* *Spectral photoresponse: reference cell-Si photodiode, scan range 300–450 nm, room temperature.*
Experimental features	*Excitonic metal oxide heterojunction (NiO/ZnO) solar cells*
Data source location	*Incheon National University, Incheon-406772, Korea*
Data accessibility	*The data are with this article*

Value of the data

- Photograph of the prepared ZnO/NiO devices for the transparent feature and reproducibility of the fabrication.
- Integrated photocurrent density of ZnO/NiO device for UV light would be useful to design UV operational transparent solar cells.
- Reproducibility and statistical information of the excitonic ZnO/NiO/Ag devices would be useful to demonstrate consistency.

1. Data

Fig. 1 shows the devices of ZnO/NiO prepared on the FTO/glass substrate to study the reproducibility and stability. Integrated photocurrent density as a function of photon energy from the sunlight

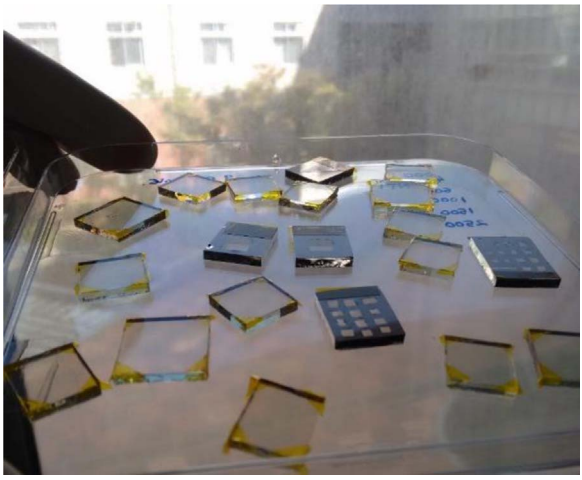

Fig. 1. Prepared devices to study the reproducibility of ZnO/NiO structure on the FTO/glass substrate.