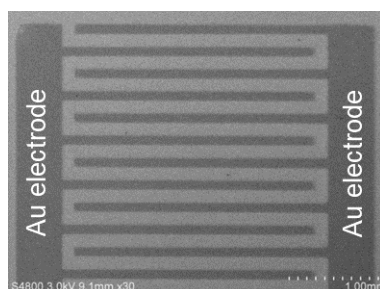


# Solution-Processed Mg-substituted ZnO Thin Films for Metal-Semiconductor-Metal Visible-Blind Photodetectors

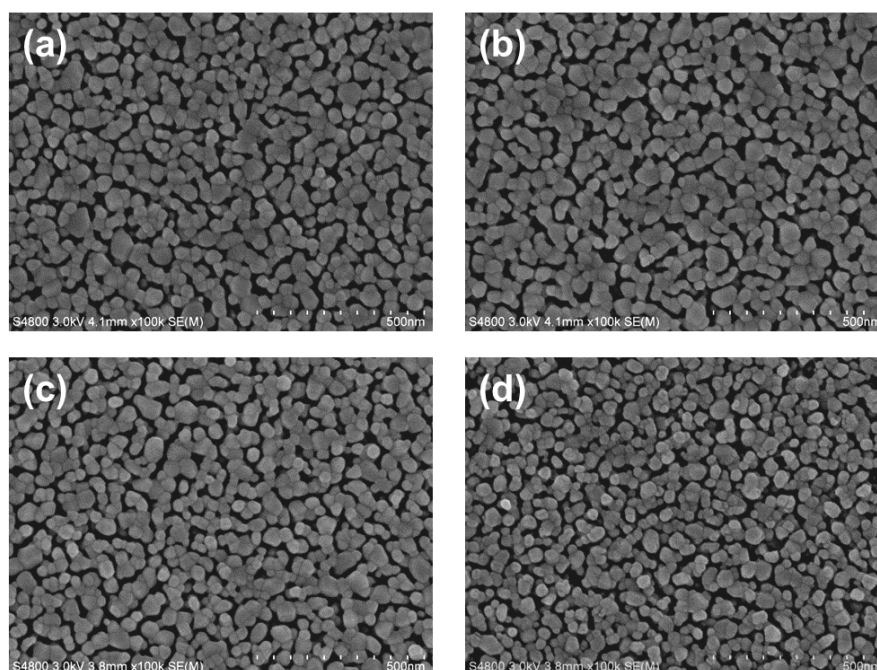
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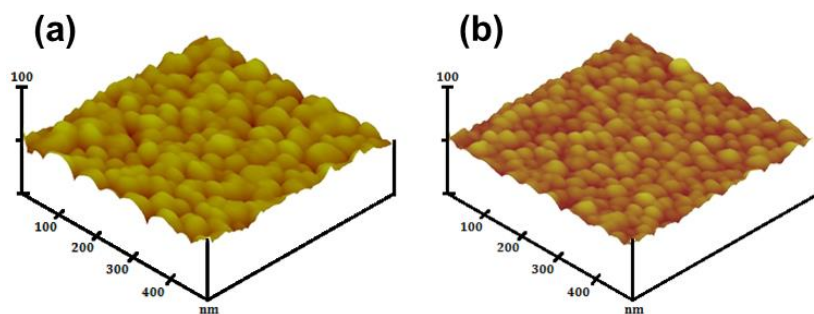
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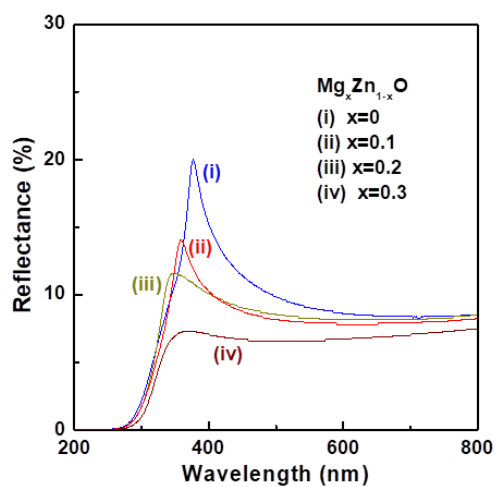
**Figure S1.** Top-view optical microscope (OM) image of the Au interdigitated electrodes (IDEs) of the fabricated photodetector device.



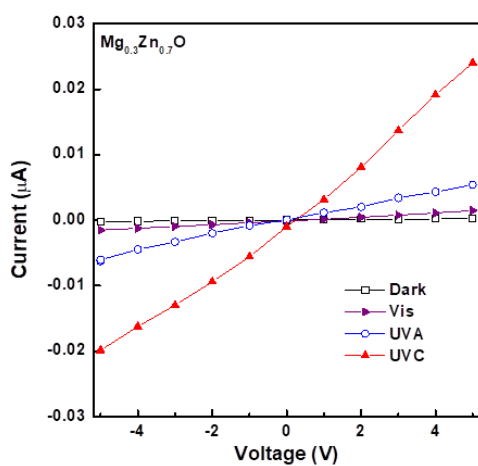
**Figure S2.** Plane-view field-emission scanning electron microscope (FE-SEM) micrographs of  $\text{Mg}_x\text{Zn}_{1-x}\text{O}$  thin films on glass substrates: (a)  $x = 0$ , (b)  $x = 0.1$ , (c)  $x = 0.2$ , and (d)  $x = 0.3$ .



**Figure S3.** Surface scanning probe microscope (SPM) images of  $\text{Mg}_x\text{Zn}_{1-x}\text{O}$  thin films: (a)  $x = 0$  and (b)  $x = 0.2$ .



**Figure S4.** Optical reflection spectra of glass/ $\text{Mg}_x\text{Zn}_{1-x}\text{O}$  thin films.



**Figure S5.** Current-voltage ( $I$ - $V$ ) characteristics of  $\text{Mg}_{0.3}\text{Zn}_{0.7}\text{O}$  photodetectors showing dark current and photoilluminated currents under irradiation with visible, UVA and UVC light.

