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Dependence of Photocurrent on UV Wavelength in ZnO/Pt Bottom-Contact Schottky Diode

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Abstract : We fabricated the bottom-contacted ZnO/Pt Schottky diode and investigated the dependence of its photocurrent on the wavelength of illuminated ultraviolet (UV) light source. The bottom-contacted Schottky diode was devised by growing (000l) ZnO on (111) Pt, and the fabricated device showed a strong dependence on the UV wavelength for its photo-response characteristics. When longer-wavelength-UV (e.g., UV-A) was illuminated on the device, the photo-current was increased by a factor of 200, compared to that under illumination of shorter-wavelength-UV (e.g., UV-C). The behavior is attributed to the wavelength-dependent UV penetration depth for ZnO.

Keywords : ZnO, UV, Schottky diode, photocurrent
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