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Novel patterning method of flexible transparent electrode for energy harvesting devices JONGBOK KIM, DONGWOOK KO, YOHAN MA, SANG-MIN LEE, YE-RI CHUN, YOUNG-MIN HWANG, Department of Materials science and engineering, Advanced materials research, Kumoh Inst of Tech, GI-BEOP NAM, Advanced materials research, Kumoh Inst of Tech, JAE-SEOUNG ROH, Department of Materials science and engineering, Advanced materials research, Kumoh Inst of Tech — Flexible transparent electrodes are essentially used in many optoelectronics. Although Indium tin oxide (ITO) is the commonly used as transparent electrode, AgNW(silver nanowire)-based transparent electrodes are considered as the most suitable alternative electrode due to good electrical, optical properties and flexibility. But, when we apply AgNW-based transparent electrode to electronic devices, a patterning process is necessary. Generally, AgNW-based transparent electrodes are patterned by photolithographic technique or laser patterning method. However, these patterning processes are required complicated processing. Therefore, research of novel patterning process is essential. In this study, we treat hydrophilic treatment like UV-Ozone treatment on substrate to control adhesion between substrate and AgNW. When we treat UV-Ozone on substrate, the adhesion between the substrate and AgNWs is strong. So, AgNWs remains on the substrate when the photocurable polymer is coated and peeled off. On the other hand, when we don't treat UV-Ozone on substrate, the adhesion is weak, so AgNWs remain the substrate. In this way, we fabricate patterned AgNW-based transparent electrode by adhesion patterning method. And we apply patterned AgNW-based transparent electrode to organic solar cells.

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