자성 프린팅 공정을 사용한 은 나노와이어 패턴닝 기술

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One-dimensional materials such as metal nanowires (NWs) or non-metal NWs have become critical components for various applications, including chemical/biological sensors, energy storage devices, and optoelectronics. Currently, the post-synthesis process of the NWs has become just as important as their synthesis for device applications. Patterning of metal nanowires (NWs) is vital for the fabrication of NW-based, high-performance devices. However, the majority of existing patterning methods require complex and expensive technologies. For this reason, we report for the first time a facile and quick patterning method of silver (Ag) NWs using a magnetic printing method. We successfully demonstrated a patterned AgNW grid structure on a flexible substrate as transparent electrodes. The flexible AgNW grid electrode exhibited optical and electrical properties comparable to those of commercial transparent conducting electrodes. We believe our work will be broadly applicable to other NW-based devices such as sensors, energy storage devices, metadevices, nanoscale electronics, and optoelectronics.