# Solvent assisted in plane Wavy Ag Nanowire Network for stretchable, transparent Electroluminescence Device

권현정, 손정곤†
한국과학기술연구원
(jgson@kist.re.kr†)

Silver nanowire (AgNW) is a most dominant material for stretchable transparent electrode due to its excellent optical and electrical properties and it is also recognized as a promising candidate in various optoelectronic devices. Although many studies in the stretchable electronics have been used a prestraining substrate method for wavy structures, this method causes cracks to AgNWs with low yield strain during releasing substrate. To improve performance of AgNW electrodes, we propose a facile fabrication process based on the in-plane wavy Ag NWs network by simply combining the conventional pre-strain method with a solvent annealing process. This process induces rearrangement of individual NW strandsands and produces in plane wavy curvature of AgNW networks. As a proof of concept demonstration, we fabricated stretchable transparent alternating current electroluminescent (ACEL) device using wavy AgNW network. The resulting ACEL device shows high luminescent performance under 50% of elongated strain and long cycle life of 1000 cycles of 50% strain. These results demonstrate the potential of these AgNW networks in applications of stretchable and transparent display market