# Optimum alloying of PtMo used as an efficient counter electrode material of dye-sensitized solar cells

신상호, 정성규, 이민지, 박은희, 다오반, 최호석†
충남대학교
(hchoi@cnu.ac.kr†)

Owing to its low fabrication cost, and high power conversion efficiency, the dye-sensitized solar cell (DSC) has attracted considerable attention as a next-generation solar cell. One of the issue with DSCs is need to improve the transfer electrons into the redox system to activate electrolyte reduction at the counter electrode (CE). Pt is known as the most popular material for CE of DSCs. Recently, Pt-based alloys have been developed and applied as CEs because of their high electrical conductivity, superior electrochemical catalytic activity and low cost. However, the major problem is the processing cost due to requirement of vacuum condition. We present here the synthesis of PtMo alloy on TCO-glass and their applications as efficient CEs of DSCs. For this purpose, we designed an experimental approach for co-reduction of metal precursors. The formation and chemical state of PtMo alloys were confirmed through TEM, XRD, HRSEM and XPS measurement. And the electrochemical catalytic activity was carefully investigated through CV, EIS and Tafel measurement. The effect of CEs on the efficiency of DSCs was finally further confirmed by photovoltaic measurement.