

## Microbubble-Triggered Separation of Transparent Thin Films from Substrates Using Evaporable Core-Shell Nanocapsules

손인태, 이은비, 박윤국, 문기태, 안병욱<sup>1</sup>, 황정호<sup>1</sup>, 이종혁<sup>1</sup>, 이준협<sup>†</sup>  
명지대학교; <sup>1</sup>삼성디스플레이  
(junhyuplee@mju.ac.kr<sup>†</sup>)

We present an unprecedented spontaneous strategy for separating optical thin films on the basis of microbubble generation using nanocapsules containing an evaporable hydrocarbon. The core-shell nanocapsules are prepared from poly(methyl methacrylate)-polyethyleneimine nanoparticles via the encapsulation of methylcyclohexane (MCH). Our debonding method applied to optical thin films doped with a small amount of the nanocapsules enables thermally detachment of thin films from substrates via vaporization of MCH. In addition, the optical film exhibited a high transmittance characteristic due to a capsule of about 200 nm in size.