

Chiral Liquid Crystal for Circular Polarized Light Detector

이상혁[†]

서울대학교

(dltkdgur011@snu.ac.kr[†])

Circular polarized light has a high potential for application in various technologies like security system, optical communication and quantum signal detection. In general, conventional CPL photodetectors cannot directly detect CPL and require a quarter wave plate and a linear polarizer. This bulky CPL detection system limits the compact devices and causes substantial losses of sensitivity and resolution. Here, we demonstrate an organic photodiode capable of direct CPL detecting by introducing organic materials having liquid crystal properties and a chiral dopant. The organic materials in the thin film are aligned with chirality by a chiral dopant. Because of the chirality, this thin film shows intense circular dichroism (CD) signals and the device shows high anisotropy factor of 0.4 with decent photodetector performance.