

Novel electron-accepting materials and their applications for polymer solar cells

이인혁, 한혜미, 김화정, 김영규*
경북대학교
(ykimm@knu.ac.kr*)

Organic solar cells have been extensively studied because of their great potential for cheap electricity generation from solar light. Compared to all-small molecule based solar cells, polymer solar cells have advantages in terms of low-cost large-area cell production and better flexibility in module design. As an electron-donating material for polymer solar cells, conjugated polymers including poly(3-hexylthiophene) (P3HT) and conjugated polymers with narrower band gap energy have been widely used. As an electron-accepting material, soluble fullerene derivatives are mainly used for >4% efficiency polymer solar cells. In this presentation, as an attempt to develop new acceptor materials, we demonstrate new electron-accepting materials that have a shifted lowest unoccupied molecular orbital (LUMO) energy compared to conventional soluble fullerene derivatives. The characteristics of the new acceptor materials and their device performances will be presented in detail.