

D- π -D type fluorene based organic small molecule for application in organic photovoltaics

압둘라, 신형식^{1,†}, 서형기¹, Ameen Sadia¹,
Mohammed Nazim¹, 파힘 아메드¹, 이지은¹,
피자히라미아¹
전북대학교; ¹전북대학교 화학공학부

In this work, a fluorene based organic molecule (9-RFL) featuring D- π -D comprising of 9,9-dioctylfluorene as the π linker and n-hexyl-bithiophene unit as the donor was successfully synthesized by Suzuki coupling reaction and applied as photoactive-material for bulk-heterojunction organic photovoltaics. The presence of terminal alkyl chains induced the solubility of organic molecule in common organic solvents and exhibited a good absorption maximum at 519 nm with the estimated optical energy band gap of 2.02 eV. The newly designed 9-RFL molecule with suitable highest occupied molecular orbital (HOMO) favors the effective hole injection for the fabricated organic solar cells.