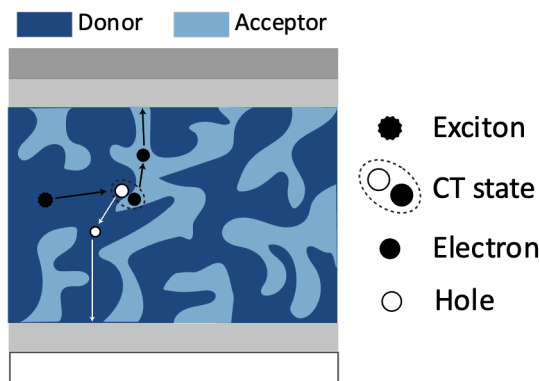


Temperature dependence of V_{OC} in non-fullerene based BHJ organic solar cells

(a)



(b)

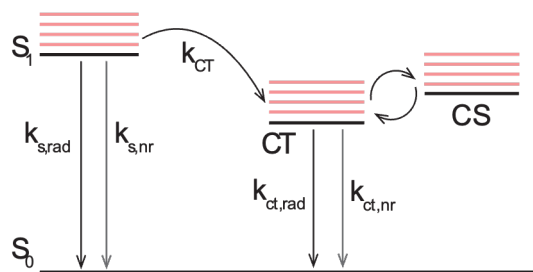


Figure: (a) Schematic of bulk-heterojunction organic solar cell devices. (b) Schematic of Jablonski diagram depicting typical photophysical processes in BHJ organic solar cells.

Objective

➤ To understand the physical origin of V_{OC} in non-fullerene bulk-heterojunction organic solar cells

Impact

Organic solar cells (OSCs) based on non-fullerene acceptors (NFAs) have attracted substantial interest as they boost the record efficiency of OSCs in recent years. This project aims to understand the temperature dependence of V_{OC} in NFA-based binary and ternary BHJ OSCs and extend the method further to understand the physical origin of V_{OC} in efficient ternary OSCs.

Facilities and Methods Used

- Temperature-dependent characterization
- Electroluminescence
- Drift-diffusion simulation

Relevant Papers

- X. Huang, et al., *Mater. Horiz.*, DOI: 10.1039/C9MH01351B
- Y. Tang, et al., *Appl. Phys. Lett.*, DOI: 10.1063/5.0158833

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