



Showcasing research from Professor Yang Wang's laboratory, Department of Materials Science, Fudan University, Shanghai, China.

Molecular “backbone surgery” of electron-deficient heteroarenes based on dithienopyrrolobenzothiadiazole: conformation-dependent crystal structures and charge transport properties

Control of crystal structures for superior charge transport still faces big challenges. Herein, a conformation engineering strategy is proposed to rationally manipulate single crystal structures of electron-deficient heteroarenes. The parent molecule has a 3D network crystal structure while subtracting one thiophene moiety from the backbone leads to a looser brickwork structure. Further subtracting two thiophene moieties results in a compact 2D-brickwork structure with an excellent electron mobility of  $3.5 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$ . This study presents an elegant demonstration of tunable single crystal structures of electron-deficient heteroarenes for efficient organic electronics.

As featured in:



See Yang Wang *et al.*, *Chem. Sci.*, 2024, **15**, 11761.