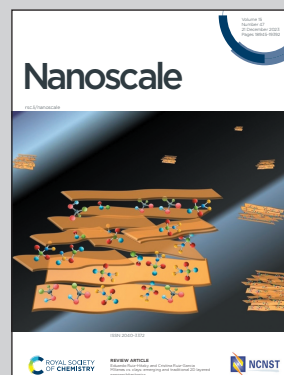


Showcasing research from the Group of Prof. Xinyu Wang, Institute of Thermal Science and Technology, Shandong University, Jinan, China.

Insight into the effect of side chains on thermal transport of organic semiconductors

Phenyl and alkyl side chains are employed to tune thermal transport of organic semiconductors, and the corresponding phonon transport mechanisms are uncovered. Phenyl side chains lead to phonon coupling in the along-chain direction, which improves phonon transport capability. Alkyl side chains cause vibrational mismatch, which degrades thermal transport in the along-chain and inter-chain directions. The nonbonding interaction dominates energy transfer in the cross-chain direction, which induces inferior phonon behaviors and weak effects of side chains.

As featured in:



See Xinyu Wang *et al.*, *Nanoscale*, 2023, 15, 19099.