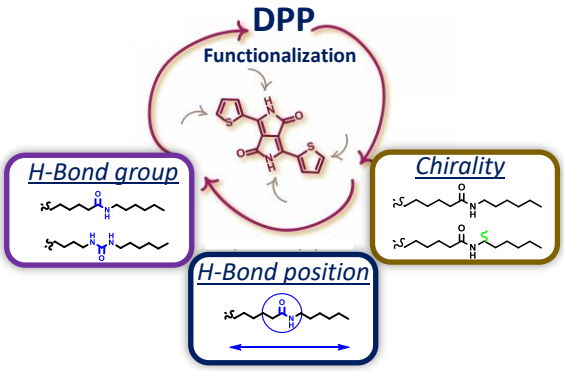
TOTAL LANDSCAPE OF HYDROGEN-BONDING IN ORGANIC ELECTRONICS

Gabriel Martinez[1], Amparo Ruiz-Carretero[1]
[1] *University of Strasbourg, Institute Charles Sadron, CNRS, UPR22, 23 Rue du Loess, 67034, Strasbourg Cedex 2, France.*

E-mail: amparo.ruiz@ics-cnrs.unistra.fr

The presence of noncovalent interactions in organic semiconductors has been demonstrated to be beneficial in several applications, resulting in the enhancement of charge transport and device efficiency. [1] Particularly, the incorporation of H-bonding in organic semiconductors has been proven to increase solar cell efficiency by 50%. [2] Nevertheless, the race for achieving efficiency records has hampered research focused on solving other fundamental issues. Regarding H-bonding, no comparative studies have been performed, finding scattered examples in the literature. [3] Our group works on demonstrating the power of H-bonds in organic electronics by performing comparative and systematic studies using DPP as a model [4], varying multiple parameters and expanding the results to state of the art derivatives. In this work, we show how the self-assembly and electrical performance is dramatically changed even by making small molecular structure modification.



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