

Summary

Up to now the efficiencies of organic solar cells cannot compete with conventional semiconductor photovoltaics. One major challenge is the control of the interfacial area between donor-acceptor materials. In this project, the synthesis and design of organic materials that phase separate spontaneously and a novel template deposition method on conducting glass substrates will enable supramolecular to nanometer scale ordering. This full control will allow us a systematic investigation of the dependence of device performance on the thin film morphology, leading to the ideally structured organic solar cell. For this reason our study will reveal new information of fundamental device physics in organic photovoltaics, and higher efficiencies and performances are expected.