Control of the Nano-morphology of Donor/Acceptor Bulk Heterojunctions for Molecular Photovoltaic Cells

Niyazi Serdar Sariciftci[1]

[1] Linz Institute for Organic Solar Cells (LIOS),
Physical Chemistry
Johannes Kepler University Linz
Altenbergerstr. 69
Linz 4040
Austria

The efficiency of the molecular solar cells based on bulk heterojunction concept is a sensitive function of the chemical as well as nano-morphological structure of the molecular solid films. By controlling the nano-morphology of one and the same polymer bulk heterojunction, photovoltaic power conversion efficiencies can be increased over 200%. This nano-morphology control is important for charge carrier generation as well as transport. Self organizing nanostructures are envisioned to realize robust nanomorphologies for organic device applications.