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Conjugated copolymers and their optimization for ambipolar field effect transistors

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Starting from cyclopentadithiophene-benzothiadiazoles, we varied the side chains from hexadecyl to branched decyl-tetradecyl ones and further included linear cis and trans-alkenes which had a major influence on the backbone packing. We further concluded to strengthen the acceptor part upon introducing thiadiazoloquinoxalines leading to a lowering of the LUMO levels and more suited ambipolar character. Upon condensation of the diamino benzothiadiazoles with benzodithiophene-dione phenanthrene-dione and phenanthroline-dione the acceptor part could be further strengthened and open a variety of new copolymers and small molecule acceptor structures.

Biography

Martin Baumgarten has completed his PhD in 1988 from the Free University of Berlin and went for Post-doctoral studies to Princeton University. Since 1990 he is a Project Head at the Max Planck Institute for Polymer Research and habilitated later and became Professor at the Johannes Gutenberg-University in Mainz. He has co-authored more than 250 papers in reputed journals.

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