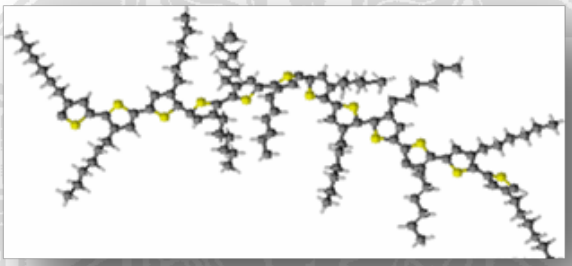
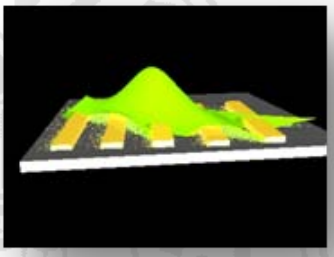
Physikalisches Institut
Fakultät für Mathematik und Physik
Albert-Ludwigs-Universität Freiburg

PHYSIKALISCHES KOLLOQUIUM

ANTRITTSVORLESUNG

AM 19. DEZEMBER 2011 UM 17 UHR C.T.

IM GROßEN HÖRSAAL

POLYMER ELECTRONICS: MOLECULAR STRUCTURE AND DEVICE PERFORMANCE

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Conjugated polymers are a unique class of molecular semiconductor with material properties which make them promising for a wide range of applications. The optical and electrical properties of the polymer can be tuned by tailoring the molecular structure, allowing for a bottom-up approach to the design of electronics. The electrical properties of conjugated polymers can be comparable to non-crystalline inorganic semiconductors, however, the complex structural properties of conjugated polymers more closely resemble biomacromolecules. Properties at the molecular scale and device scale are fundamentally entangled and therefore molecular conformation and interactions play an important role in the functionality of these material systems. In this talk the relationship between molecular structure and device performance is illustrated for polymer-based solar cells and transistors. It is additionally shown that the structural complexity of conjugated polymers can be used to produce novel devices for molecular recognition applications in bioelectronics.