

Organic semiconductors for applications in electronics

With the successful market introduction of organic light-emitting displays, plastic electronics has now become an emerging technology with ever increasing industrial development. The active electro-optical materials constituting these devices rely on conjugated organic molecules that are held together by weak Van der Waals forces. As a consequence, organic semiconductors are advantageously processed from solution or from the vapour phase at low temperatures. They are mechanically soft, allowing for flexible applications. This presentation highlights specific properties of organic semiconductors and features their merit in optoelectronic thin film devices. In particular, the effect of crystallinity on charge transport and optical properties, the use of interface dipoles for charge injection and the potential of highly absorbing dyes in organic photovoltaic cells will be pointed out.