

## **Summery**

The objective of the project is to establish – by a collaboration between a synthetic chemistry group and an experimental physics group – a detailed link between the structure of the photovoltaic active molecules and the electro-optical properties of solar cells made from them. The interdisciplinary research focuses on the influence which changes in the molecule structure have on the molecular stacking, the absorption and transport properties of the layers, and the carrier and excitons dynamics at the heterointerfaces. As a model system, oligothiophene derivates will be used. For those materials, a successful first cooperation has already been established. The new materials proposed here will be specifically designed for the devices to be made in this project. Based on the results, a better understanding of the elementary processes in small-molecule organic photovoltaics is expected, helping in a directed research towards devices with higher efficiency and longer lifetime.