# PhD position: Terahertz spectroscopy of semiconducting polymers

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Semiconducting polymers enable new electronic devices, such as mechanically flexible electronics or low-cost large-area displays, and solar cells. But the physics behind charge transport in semiconducting polymers is only partially understood, which makes further progress on the way towards molecular electronics challenging.

The goal of the project is to gain insight into the fundamental transport processes of charge carriers in conjugated polymers. Of particular interest is how carriers move on scales comparable to molecular distances. Such small transport distances prohibit investigations using conventional electronic techniques, but can be accessed by terahertz (THz) spectroscopy. For the THz experiments, devices will be fabricated using standard semiconductor processing technologies, such as physical vapor deposition (PVD) and chemical vapor deposition (CVD).

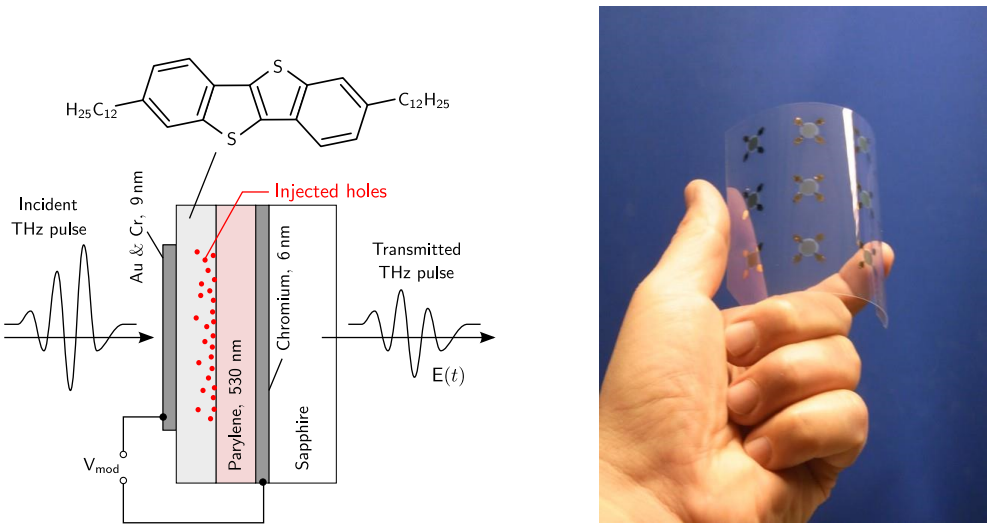


**Figure:** Terahertz electromodulation spectroscopy and devices of organic semiconductors.

**Requirements:** Applicants must have a master's degree in physics and excellent background in solid state physics and physics of organic semiconductors.

**Position/Salary:** depending on qualification

**Collaborations:** Prof. Y. Geerts, Brussels

**Contact:** Prof. Dr. R. Kersting, `roland.kersting@lmu.de`
For applications cite reference number: PhD20250108

**Literature:**


- P. Riederer and R. Kersting, Terahertz electromodulation spectroscopy for characterizing electronic transport in organic semiconductor thin films, J. Infrared Milli. Terahertz Waves, **44**, 1, 2022, `https://doi.org/10.1007/s10762-022-00893-z`
- P. Riederer, C. Eckel, T. Weitz, and R. Kersting, Terahertz study of ambipolar transport in the semiconducting polymer poly-diketopyrrolopyrrole-terthiophene (PDPP3T), Appl. Phys. Lett., **123**, 182104, 2023, `https://doi.org/10.1063/5.0166449`