ORGANIC AND ORGANOMETALLIC MATERIALS@MQ GROUP

LIGHT EMITTING AND OPTOELECTRONIC MATERIALS
Light emitting molecules play a fundamental role in applications related to light to energy conversion and energy to light conversion processes. In this area of our research, we explore new design principles to achieve desired properties of the light emitting materials for specific applications by devising different molecular/macromolecular scaffolds based on both organometallic complexes and organic molecules. In this context, we have recently developed several novel classes of organic and organometallic molecules with exceptional luminescence properties. The judicious use of various structural and electronic elements allows tuning the light emitting properties. Design and investigations into new molecular/macromolecular scaffolds are currently being explored in the group for targeted applications in the areas of OLEDs, solar cells and imaging.

ELECTRONIC MATERIALS AND MOLECULAR ELECTRONICS
Molecular electronics is aiming at the use of small ensembles or even individual molecules as functional building blocks for electronic circuitry. Organic and organometallic materials that are redox-active have an important role to play in the build-up of key elements that forms many different parts of the electronic circuitry. In this context, we are pursuing a bottom-up approach to the development of designer molecules bestowed with the appropriate redox functionality. In collaboration with the group of Professor Berke (University of Zurich) and Dr. Emanuel Loertscher (IBM, Zurich), we had demonstrated charge transport and conductance switching behaviour of organic and organometallic systems at the single molecule level. Targeted design and investigations into tailor-made redox switching organic and organometallic systems are currently being explored in the group.
Selected Publications


