



- 1 *New structures.*
- 2 *Formulations and layer.*
- 3 *Droplet formation.*

OLED MATERIALS

FROM MATERIALS TO FORMULATIONS

OLED Materials

The main focus lies on the synthesis of novel materials with improved optoelectronic properties as well as in device design and manufacture. Conjugated and non-conjugated polymers exhibit the ability to integrate all the active components like the hole- and electron-transport as well as phosphorescent molecules in only one or three layers. In one case, structure optimized and energy-level adapted hole- and electron-transport and phosphorescent molecules were selected and modified with polymerizable groups. Another approach is to separate the transport molecules in two different layers. Besides the orthogonal solvents approach, cross linkable polymers have been developed to realize the multi-layer deposition during wet processing. By that, different hybrid OLED stacks can be realized.

Formulations for Printing

All the synthesized organosoluble materials are formulated as inks for large area processing, more specifically inkjet, slot-die and other printing techniques. Therefore, different solvents and mixtures of solvents are evaluated for each material system. The viscosity of the ink can also be adapted for the printing process. Formulations are especially optimized for inkjet printing processes for the next generation of OLED and quantum dot displays.

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