

## Bachelor / Master Thesis:

# Stable materials for high performance silicon-organic electro optic devices

Utilizing a low footprint, high transfer rates and highly energy-efficient operation, silicon-organic hybrid (SOH) photonic devices have become a suitable candidate, to play a key role in the future of datacom. In those devices, the lacking second-order nonlinearity of silicon is compensated by integrating high performance electro optic organic materials.

Electro optic molecules usually exhibit a high Pockels-effect, with values of  $r_{33}$  way above 100 pm/V. Nevertheless, outside the lab organic materials usually suffer from degradation, especially when exposed to heat, UV-light and air. The focus of this work is to fabricate and test SOH devices utilizing various organic components.

### Your tasks:

- Device fabrication & Characterization
- Long-time measurements
- Material optimization

### For detailed information contact:

Dr. Adrian Mertens

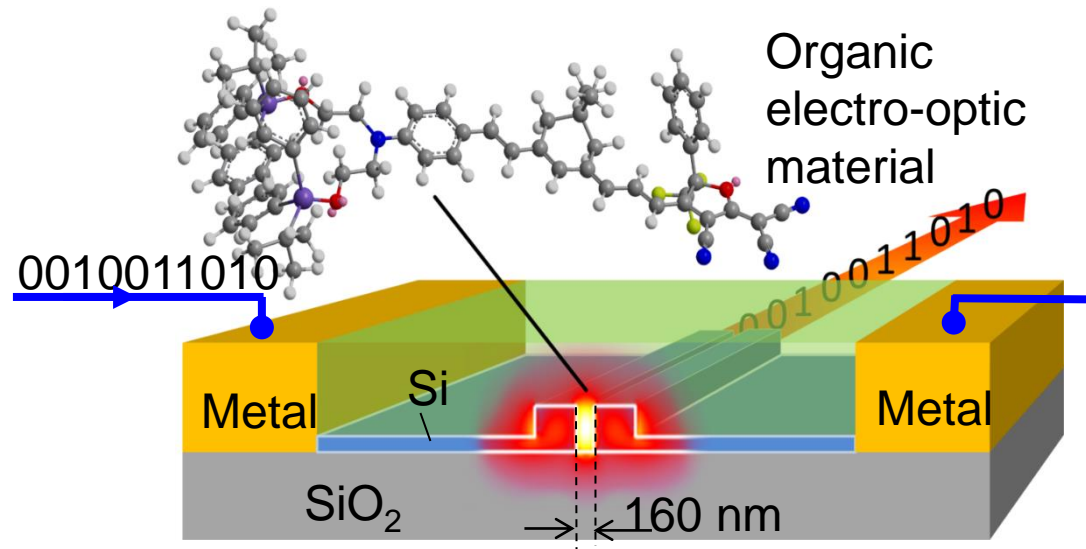
[Adrian.mertens@kit.edu](mailto:Adrian.mertens@kit.edu)

Tel. 0721-608-47170

Prof. Dr. Christian Koos

[Christian.koos@kit.edu](mailto:Christian.koos@kit.edu)

Tel. 0721-608-42481



Function scheme of a Silicon-organic hybrid phase shifter