

# Strong interactions in functional organic materials and devices - a curse or a blessing?

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**Frank Ortmann**

*TU Munich, Germany*

[frank.ortmann@tu-dresden.de](mailto:frank.ortmann@tu-dresden.de)

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Electronic or excitonic transfer processes are central to the operation of any electronic or optoelectronic device and need to be understood at the nanoscale. In organic molecular materials, they are affected by strong interactions. Electron-phonon coupling is an essential ingredient for understanding electronic and optical properties. In addition, the Coulomb interaction is greatly enhanced by the low dielectric constants of these materials and can surpass the electronvolt energy scale. This however opens interesting perspectives to using strong interactions as a design tool for band structure engineering, doping or tuning of optical and excitonic properties in OLEDs, photovoltaics or photodetectors. In my talk I will discuss how to describe these strong interactions in organic semiconductors and how to explore them for devices. Besides applications, this renders these materials an intriguing platform for fundamental studies.

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## References

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