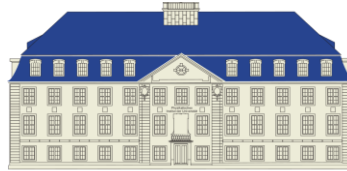




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VERSITÄT BONN

## COLLOQUIUM „OPTICS AND CONDENSED MATTER“

**Sven Höfling**

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### **Polariton lattices in patterned microcavities**

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Polaritons are quasiparticles composed partly of light and partly of matter, combine pronounced nonlinearities arising from their excitonic component with the possibility of on-chip implementation. In this presentation, techniques to confine polaritons and build up lattices will be presented, both for III-V and fluorescent protein semiconductors. We report the formation of confined mode and band structures as well as the lasing properties of exciton-polaritons in single or coupled microcavities [1-5], for instance arranged in a linear periodic 1D, Su-Schrieffer-Heeger chains, honeycomb or other lattices.

- [1] S. Betzold et al., ACS Photonics 7, 384 (2020)
- [2] M. Dusel et al., Nat. Commun., 11, 2863 (2020)
- [3] M. Dusel et al., Nano Lett., 21, 6398 (2021)
- [4] T. H. Harder et al., ACS Photonics 8, 1377 (2021)
- [5] S. Klemmt et al., *Exciton-polariton topological insulator*. Nature 562, 552 (2018)

**December 12th, starting with discussion at 17:00 h, talk at 17:15 h, live IAP lecture hall or via Zoom**

<https://uni-bonn.zoom.us/j/98441612025?pwd=a01SSjlkY1Q3SDFhL09JQk1qc1V6dz09>

Meeting-ID: 984 4161 2025

Kenncode: 294164