

# Bosons in a narrow-band optical resonator

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I will review our recent results on atom-cavity physics with a rubidium Bose-Einstein condensate in a narrow bandwidth optical resonator. I will discuss different physical scenarios including cavity cooling on a sub-recoil energy scale [1], in-situ monitoring of Bloch oscillations [2], matter wave superradiance [3], non-equilibrium dynamics in the open Dicke model [4], and the emergence of a self-organized cavity-induced Mott insulator [5].

## References

- [1] M. Wolke, et al., Science 337, 85-87 (2012)
- [2] H. Keßler, et al., <http://arxiv.org/abs/1606.08386> (2016)
- [3] H. Keßler, et al., Phys. Rev. Lett. 113, 070404 (2014)
- [4] J. Klinder, et al., PNAS 112, 3290 (2015)
- [5] J. Klinder, et al., Phys. Rev. Lett. 115, 230403 (2015)