



Theoretical Quantum Optics and Technology

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ABSTRACT

The main focus of research in our Group is quantum computation and quantum simulations with various quantum optical systems. Much of our research is theoretical, largely motivated by state-of-the-art experiments in quantum technologies, and we also closely collaborate with several experimental teams. Our group has been actively involved in the studies of physical implementations of quantum information processing and communication with optical, atomic, solid-state and hybrid systems [1,2], investigations of spin lattice models with cold atoms in optical lattices and interacting Rydberg atoms [3] and quantum simulations of strongly interacting few- and many-body systems.

REFERENCES

- [1] Kurizki G et al. 2015, *PNAS* **112**, 3866
- [2] Kaiser M et al. 2022, *Phys. Rev. Research* **4**, 013207
- [3] Tzortzakakis AF, Petrosyan D, Fleischhauer M, Mølmer K 2021, arXiv:2111.14553