



# EINLADUNG zum IFP-SEMINAR

## Correlated lattice bosons with photoinduced infinite-range interaction

**Jaromir Panas**

Institute of Theoretical Physics, University of Warsaw, Poland

Host: Karsten Held  
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Wiedner Hauptstraße 8-10, 1040 Wien  
Seminarraum DB gelb 03 (gelber Bereich, 3. OG)  
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Recent experiments [1,2] with bosons on an optical lattice inside an optical cavity have shown the importance of long-range interaction in the formation of new structures and phases. The Bose-Hubbard model with an effective infinite-range interaction provides a theoretical description of such experiments. We solve this model within the bosonic dynamical mean-field theory (B-DMFT) and discuss the features of the phase diagram, commenting on how it compares to the results of the experiments and the static mean-field approach. We also present the spectral properties of the considered system.

- [1] J. Klinder, H. Kessler, M. R. Bakhtiari, M. Thorwart, and A. Hemmerich, Phys. Rev. Lett. 115, 230403 (2015).
- [2] R. Landig, L. Hruby, N. Dogra, M. Landini, R. Mottl, T. Donner, and T. Esslinger, Nature 532, 476 (2016).