

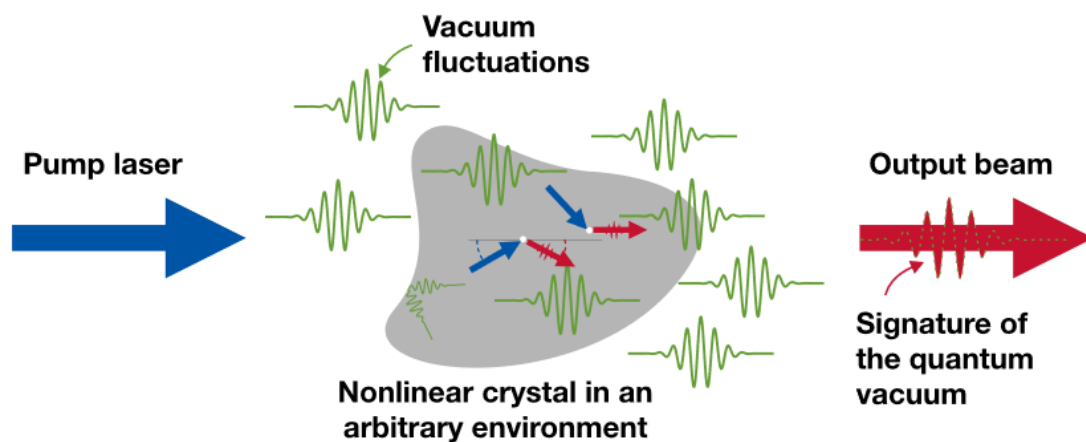
# PHYSIKALISCHES KOLLOQUIUM

AM 11. JULI 2022 UM 17 UHR C.T.

IM GROßEN HÖRSAAL

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## YOU WANT IT DARKER: FROM QUANTUM VACUUM TO FROZEN LIGHT

STEFAN BUHMANN  
*UNIVERSITÄT KASSEL*

Macroscopic quantum electrodynamics describes the interaction of light with individual atoms and large objects. This talk will give an overview over phenomena emerging from various forms of electromagnetic fields:

The quantum vacuum is the most peculiar state of light which only contains fluctuating fields. Its rich spatiotemporal structure has recently been revealed by means of electro-optic sampling. Vacuum fluctuations may be regarded as responsible for dispersion forces and quantum friction. The exchange of individual real photons gives rise to resonance energy transfer and interatomic Coulombic decay. Finally, a photonic Bose-Einstein condensate consists of ultracold thermalised multimode light which can be used as a sensitive quantum detector.