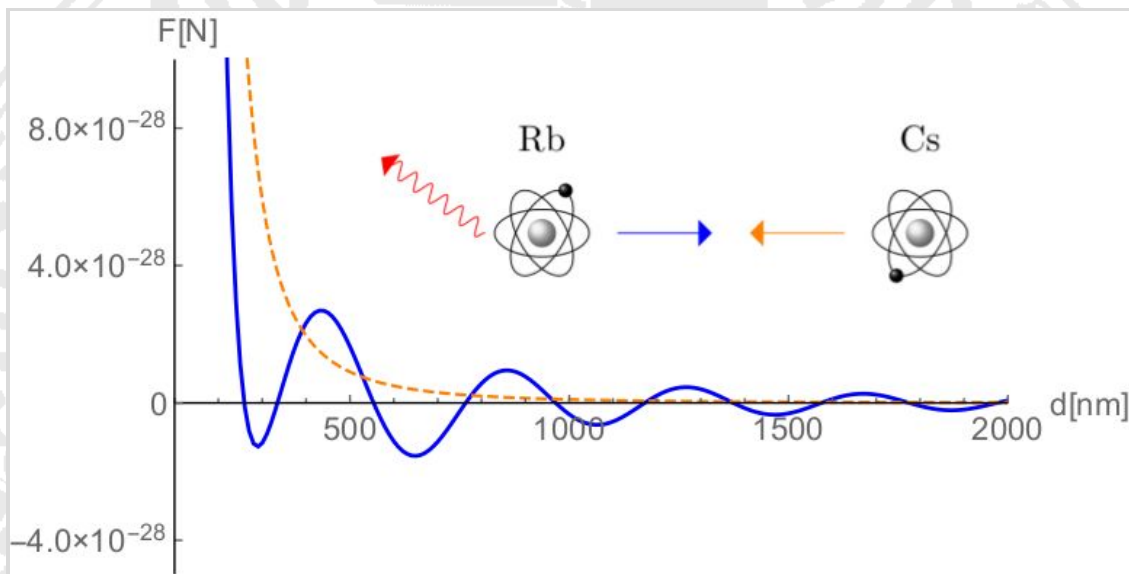




# SONDERKOLLOQUIUM

AM 25. APRIL 2018 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



**The eye of the beholder:  
how fast can atoms see each other?**

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Van der Waals forces between neutral, polarisable atoms are mediated by an exchange of two virtual photons. Surprisingly, a very fundamental question regarding such forces had remained unsolved until very recently: how does the finite speed of light affect the van der Waals interaction between an excited and a ground-state atom? Contradictory results were obtained in the past: Some studies found an oscillatory distance-dependence due to an interference of photons emitted by the excited atom and back-reflected by the ground-state atom. Others predicted a purely monotonous force.

I will show that a time-dependent analysis leads to surprising and Solomonian answer to this puzzle which appears to violate Newton's action–reaction principle. The result has implications for lateral dispersion forces and raises new questions regarding the distance-dependence of resonance energy transfer.