The Floquet Adiabatic Theorem revisited PHILLIP WEINBERG,
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TOLI POLKOVNIKOV, Boston University — The existance of the adiabatic the-
orem for Floquet systems has been the subject of an active debate with different
articles reaching opposite conclusions over the years. In this talk we clarify the situ-
ation by deriving a systematic expansion in the time-derivatives of a slow parameter
for the occupation probabilities of the Floque states. Our analysis shows that the
in a certain limit the transition between Floquet eigenstates are suppressed and it
is possible to define an adiabatic theorem for Floquet systems. Crucially we ob-
serve however that the conditions for adiabaticity in ordinary and Floquet systems
are different and that this difference can become important when the amplitude of
the periodic driving is large. We illustrate our results with specific examples of a
periodically driven harmonic oscillator and cold atoms in optical lattices which are
relevant in current experiments.

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