



## Physical Sciences Seminar

# The Schwinger effect and analog mechanisms in condensed matter systems

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Pair creation via the Schwinger mechanism is a fundamental prediction in quantum field theory. Unfortunately, a direct experimental verification of this purely nonperturbative phenomenon has not yet been achieved, since the critical field strength is extremely large. Recent developments have shown that constructing the field in an appropriate way may effectively reduce the width of the tunnelling barrier and thus result in a drastic enhancement in the pair production rate. In this talk, I will present the basic idea behind this dynamical mechanism. Afterwards, I will discuss the possibility of observing analog effects in condensed matter systems. In particular, I will consider the case of graphene monolayers and argue that the described mechanism may be tested with present-day laser technology.

**Tuesday, October 15, 2019 11:00am - 12:00pm**

Heinzel Seminar Room / Office Bldg West (I21.EG.101)



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