

EXCITONIC INSTABILITY AND GAP  
GENERATION IN MONOLAYER GRAPHENE

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S u m m a r y

We analyze the excitonic instability in graphene by solving the Bethe–Salpeter equation for the electron-hole bound state. In the supercritical regime, we show that this equation has a tachyon in its spectrum. We argue that the excitonic instability is resolved through the formation of an electron-hole condensate leading to the gap (mass) generation in the quasiparticle spectrum. Such a gap could be observed in a free standing clean graphene.