

Abstract Submitted  
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**Electron-phonon vertex correction and Migdal's theorem in monolayer graphene**<sup>1</sup> BITAN ROY, JAYDEEP SAU, Condensed Matter Theory Center, Department of Physics, University of Maryland, College Park, Maryland 20742, USA — Corrections to the electron-phonon vertex in three dimensional Fermi liquid system scales as the ratio of the electric to the ionic mass, and are therefore negligible. This outcome is often referred as Migdal's theorem. In this talk we will briefly review the applicability of the Migdal's theorem for non-relativistic Fermi liquids in two and one spatial dimensions. In the later part of the talk we will concentrate on the electron-phonon vertex corrections for quasi-relativistic Dirac fermions in graphene. We here consider take into account only the acoustic phonon and its coupling with Dirac fermions. We will present the relevance of the electron-phonon vertex corrections, which otherwise depends only the ratio of the velocity of acoustic phonon and the Fermi velocity. If time permits, relevance of the electron-phonon vertex function in bilayer graphene will also be discussed.

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Bitan Roy  
Condensed Matter Theory Center, Department of Physics,  
University of Maryland, College Park, Maryland 20742, USA

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