The geometric Berry phase is part of the phase accumulated by a quantum system undergoing adiabatic evolution around a closed loop in parameter space \(^1\). Recently, data from quantum oscillations experiments, in which Berry’s phase is accessible via its contribution to the phase offset, were used to determine Berry’s phase in certain electron- and hole-doped cuprate superconductors in high-magnetic-field regimes \(^2\). The data reveal a trivial Berry phase of 0 in the hole-doped materials examined, while a phase of \(\sim 1.4\pi\) was found in the electron-doped material. These findings set new, significant constraints on the possible descriptions of the pseudogap phase of the cuprates. This is used as a test of validity for some proposed models of cuprate superconductors. Berry’s phase is computed within the framework of these models in high-field regimes and compared to the experimental findings.


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