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Quantum ripples in strongly correlated metals ERIC ANDRADE, EDUARDO MIRANDA, Universidade Estadual de Campinas, VLADIMIR DOBROSAVLJEVIC, Department of Physics and National High Magnetic Field Laboratory, Florida State University — Abstract We study how well-known effects of the long-ranged Friedel oscillations are affected by strong electronic correlations. We first show that their range and amplitude are significantly suppressed in strongly renormalized Fermi liquids. We then investigate the interplay of elastic and inelastic scattering in the presence of these oscillations. In the singular case of two-dimensional systems, we show how the anomalous ballistic scattering rate is confined to a very restricted temperature range even for moderate correlations. In general, our analytical results indicate that a prominent role of Friedel oscillations is relegated to weakly interacting systems.

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