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Theory of Helical Fermi liquids ALI ASHRAFI, DMITRII
MASLOV, University of Florida — We extend the Landau Fermi Liq-
uid (FL) theory to include spin-orbit coupling (SOC). In particular, the
Rashba SOC is chosen as an example. It is shown that although "charge-
part" quantities, such as the charge susceptibility and effective mass, are
determined solely by the quasi-particles, "spin-part" quantities, such as
the spin susceptibility, have contributions from the damped states in
between the two Fermi surfaces induced by the SOC. However, contri-
butions to the lowest order in the SOC can still be extracted from the
theory. The nature of the instabilities of such spin-orbit coupled FL is
discussed.

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