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Spin Hall effects in a hot dense matter: different sources from collisions and self-energies

We present our recent development on calculating the interaction corrections for the spin polarization current in the phase space, from collisions and self-energies. We will illustrate the different sources in the framework of quantum kinetic theory, including the intrinsic contribution from Berry curvature, self-energy corrections, side-jump mechanism which comes from the collisions but is independent of couplings and so on. We also introduce how one can obtain these interesting interaction corrections from real-time linear response theory based on Zubarev's formula.

Category

Theory

Collaboration (if applicable)

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