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Spin drift in Rashba systems with tilted magnetic fields

It is well known in Plasma physics that combinations of electric and magnetic fields lead to the drift of charge particles. In this work, we show that with the addition of a tilted magnetic field, drift analogous to that observed in plasmas occurs in systems with Rashba SO interactions. The resulting drift of the charge carriers has a direction dependent on the spin, rather than the charge of the electron or hole, reflecting the origin of this effect in the spin-orbit interaction. From this theoretical analysis we present proposals for experimental observation.

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