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【168】Systematic study of magnetotransport with the Berry-Boltzmann equations

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There is a huge renewed interest in magentotransport phenomena in solids, especially in relation with topology, Berry curvature, and Weyl points. The responses of interest include nonlinear anomalous Hall effect, crystal Hall effect, planar Hall effect, unidirectional magnetoresistance, and electrical magnetochiral anisotropy, among others. In this talk. I will show how to classify all these responses according to their transformation properties under inversion and time-reversal symmetry, and how they can be systematically described by the Boltzmann equation combined with the semiclassical equations of motion modified by Berry curvature and intrinsic magnetic moment of Bloch states - the so-called "Berry-Boltzmann equations".

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