

Spin Hall and spin drag effects in two- and three-dimensional materials

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Recent experimental and theoretical work reveals several ways in which spin transport differs fundamentally from charge transport. This talk first reviews the spin drag effect observed in semiconductor quantum wells as an example of how interactions modify spin transport more strongly than charge transport. We then discuss the "topological insulator" phase of two- and three-dimensional materials, which shows a robust spin Hall effect carried by edge states and may have been observed recently in HgTe structures.