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Enhancement of spin-orbit interaction by electron correlation HIROKI ISOBE, University of Tokyo, NAOTO NAGAOSA, University of Tokyo, RIKEN — We discuss the interplay between relativistic spin-orbit interaction (SOI) and electron correlation, and report the enhancement of the effective strength of SOI by electron correlation. Here we consider a two-site model of t_{2g} orbitals to show that there are cases where the SOI is effectively enhanced by Hund's coupling. Since the strong SOI usually requires heavy and rare elements, it is desirable to realize a strongly spin-orbit coupled electronic system with lighter and abundant elements, especially from the viewpoint of applications. This finding of the effective enhancement of SOI by electron correlation will pave the way for the realization of such systems.

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