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"Hidden effect X" re ects the intrinsic properties of the perfect crystal rather than imperfections that would disappear when the crystal becomes perfect. The understanding of such hidden intrinsic effects is important as it can demystify peculiar observations of phenomena that are unexpected to exist based on the global symmetry of the system.

Examples of "Hidden Effect X" that is SOC-induced include (i) Rashba or Dresselhaus spin polarization, expected exclusively to occur in non-centrosymmetric crystals, but predicted

antiferromagnets made of spin split ferromagnetic sectors are also illustrated for $CoBr_2$[56] (bulk belonging to SST-2 with sector belonging to SST-5) and $Ca_3Ru_2O_7$[60] (bulk belonging to SST-3 with sector belonging to SST-5) in Supplementary Information Section C.

We note that the corresponding hidden spin polarization pro-

c SOC d c b -
f b d SOC

In collinear antiferromagnetic compounds, the existence of UT in the spin space group (SSG, symmetry group of the system without SOC) means there is a spatial translation T that connects the atomic sites

response behavior. Furthermore, the bulk antiferromagnets formed by ferromagnetic layers with alternatively aligned magnetic moments along the direction perpendicular to the ferromagnetic

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Additional information

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