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Exciton mediated triplet superconductivity in Th system PrOs4Sb12 MIKITO KOGA, Shizuoka University — We investigate a possibility of triplet superconductivity mediated by crystal-field excitations in a skutterudite $PrOs_4Sb_{12}$. The dispersive excitation modes (excitons) are caused by an effective exchange interaction due to the conduction electrons coupled with the Pr f^2 states. The Cooper pairing interaction reflects the point group symmetry of the Pr site rather than the global symmetry of the Fermi surface. The T_h symmetry (without fourfold symmetric axes) of the skutterudite crystals is a key to stability of the triplet Cooper pairing. We attempt to explain a possible superconducting state with broken time-reversal symmetry and a multiple superconducting phase in a magnetic field, recently reported by experiments.

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