

Abstract Submitted
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Constraining Modified Gravity with SN 1987A PHILLIP ZUKIN,
EDMUND BERTSCHINGER, MIT — In the 1950's, Papapetrou found that extended bodies with spin, in general relativity, do not move along geodesics because of a spin-curvature coupling. Using an Eikonal approximation, we reproduce these results for Dirac and Majorana particles. We generalize these results to modified theories of gravity with a non-minimally coupled matter lagrangian and place constraints on the coupling field based on the arrival times of SN 1987A neutrinos.

Phillip Zukin
MIT

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