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SUSY in the Sky with Gravitons

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The quest of the perturbative post-Minkowskian study of the gravitational two body problem has recently seen advances upon employing quantum field theory techniques. I report on a novel approach based on a worldline quantum field theory that provides an efficient way to study the classical scattering of two massive objects (black holes, neutron stars or stars) in GR.

We are able to directly compute the emitted Bremsstrahlung, deflection and spin kick of such an event. The inclusion of spin degrees of freedom of the scattered massive bodies leads to a hidden N=2 supersymmetry on the worldline.

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