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Asymptotic evolution of Robinson-Trautman spacetimes

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By exploring the numerical scheme introduce in [1], we analyze the asymptotic ($u \rightarrow \infty$) evolution of Robinson-Trautman spacetimes, with special emphasis on the behavior of the apparent horizon and its curvature anisotropies, which can indeed induce accelerations and a recoil in the remnant black hole due to asymmetrical emission of gravitational waves [2].

References

[1] A. Saa and R.P. Macedo, *Gravitational wave recoil in Robinson-Trautman spacetimes*, Phys. Rev. **D78**, 104025 (2008) [arXiv:0809.3039].

[2] L. Rezzolla, R.P. Macedo, J.L. Jaramillo, *Understanding the "anti-kick" in the merger of binary black holes*, Phys. Rev. Lett. **104**, 221101 (2010) [arXiv:1003.0873].

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