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Upper bound on thermal gravitational waves from hidden sectors

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Hot viscous plasmas unavoidably emit a stochastic gravitational wave background similar to electromagnetic black body radiation. Presenting work published in 2312.13855, we study the hidden particle contribution to the background emitted by the primordial plasma in the early universe. While this contribution can easily dominate over that from Standard Model particles, we find that both are capped by a generic upper bound that makes them difficult to detect with interferometers in the foreseeable future. We finally illustrate our results by considering axion-like particles and heavy neutral leptons.

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