Abstract Submitted
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Firewall quasinormal modes[1] RYAN MCMANUS, EMANULELE BERTI, Johns Hopkins University, CAIO FILIPE BEZERRA MACEDO, Federal University of Par, DAVID KAPLAN, SURJEET RAJENDRAN, Johns Hopkins University — A recent firewall solution in general relativity was constructed to solve the black hole information problem. This novel solution is equivalent to a Schwarzschild black hole outside of a Planck-density shell, and within the shell, it is equivalent to the interior of a Reissner-Nordstrom black hole. In so doing, the existence of an event horizon is avoided. Gravitational waves probe the whole structure of the firewall and so test the interior of the solution and not just the exterior spacetime. Further, they reveal the stability of the solution under perturbations. We examine the quasinormal mode spectra given non-radial polar perturbations and find limits on the model's parameters for which it is stable. Importantly, the spectra differ greatly from that of a Schwarzschild black hole for all values. This provides a clean test for the existence of such an object.

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