RECENT WORK ON KERR STABILITY AND SUPERRADIANT WAVE SCATTERING

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Abstract. As a stopgap measure until a rigorous analytic determination is made, Teukolsky and I have tested the dynamical stability of the Kerr metric under small perturbations numerically (Press and Teukolsky, 1973). We find that it is stable for all $a \leqslant M$. We have also computed the magnitude of electromagnetic and gravitational-wave amplification in superradiant scattering, and Bardeen has independently obtained identical results (Teukolsky, 1973; Teukolsky *et al.*, 1974). The amplification ranges up to $\sim 2\%$ for electromagnetism $(l = m = 1)$ and up to 140% for gravitation $(l = m = 2)$; these values are also consistent with Starobinsky's (1973) results for the value of critical frequencies.

References

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