

# The decay of solutions of the linear wave equation on flat spacetime

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## ABSTRACT

The purpose of the talk is to explain some basic methods used to study the asymptotic properties of solutions of the linear wave equation on the flat spacetime. The vector field method, which relies on the geometric structure of the equation, will be explained, and then used to derive conservations of energy for solutions of the wave equation. Then, the Klainerman-Sobolev inequalities will be derived, so that the asymptotic behavior of solutions of the wave equation can be described in detail. Finally, we will discuss the obstacles to the generalization of these results on black hole backgrounds.