

Abstract

In this paper, we prove the first asymptotic completeness result for a scalar quasilinear wave equation satisfying the weak null condition. The main tool we use in the study of this equation is the geometric reduced system introduced in Yu (*Modified wave operators for a scalar quasilinear wave equation satisfying the weak null condition*, 2021). Starting from a global solution u to the quasilinear wave equation, we rigorously show that well chosen asymptotic variables solve the same reduced system with small error terms. This allows us to recover the scattering data for our system, as well as to construct a matching exact solution to the reduced system.