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A Monotonicity Formula Approach for Higher Dimensional Hyperbolic PDE

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Abstract

We will discuss joint work with Philippe Lefloch and Terry Tao. The aim of the work is to understand a family of already established estimates (“null form estimates”) for the linear wave equation from the point of view of a monotonicity formula. We will describe such a proof for one family of null form estimates in higher dimensions ($n \geq 7$). The result is analogous to previously established “interaction estimates” for Schrödinger equations when $n = 3$ and certain hyperbolic equations when $n = 1$.