STABILITY OF MINKOWSKI SPACE AND POLYHOMOGENEITY OF THE METRIC

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I will explain a new proof of the non-linear stability of the Minkowski spacetime as a solution of the Einstein vacuum equation. The proof relies on an iteration scheme at each step of which one solves a linear wave-type equation globally. The analysis takes place on a compactification of $\mathbb{R}^4$ to a manifold with corners whose boundary hypersurfaces correspond to spacelike, null, and timelike infinity. I will describe how the asymptotic behavior of the metric can be deduced from the structure of simple model operators at these boundaries. Joint work with András Vasy.