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Lower Bounds for the Total Mass in 3-Dimensions

We provide lower bounds for the total mass of 3-dimensional initial data sets that are based on (spacetime) harmonic functions. The technique works for both the asymptotically flat and asymptotically hyperboloidal settings. These bounds are valid without the assumption of nonnegative scalar curvature or the dominant energy condition. However, if the energy condition is assumed then the result yields a new proof of the positive mass theorem.