# STRUCTURE OF INITIAL DATA IN AN INHOMOGENEOUS DUST COLLPSE

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## Abstract

We examine the relevance of the initial state of a collapsing dust cloud towards determining its final fate in the course of continuing gravitational collapse. It is shown that given an arbitrary $C^1$- energy function $f(r)$ (with some conditions), there exist infinitely many $C^1$-mass functions $F(r)$ such that the initial data $f(r)$ and $F(r)$ lead the collapse to a strong curvature naked singularity, and thus a set of energy functions can also be regarded as true initial data leading to a naked singularity. We further prove that the occurrence of such naked singularities is stable but non-generic in $C^1$-topology with respect to such energy functions.

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