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No breather theorems for the mean curvature flow

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Abstract. In this article we study the breathers of the mean curvature flow in the Euclidean space. A breather is a solution to the mean curvature flow which repeats itself up to isometry and scaling once in a while. We prove several no-breather theorems in the noncompact category, showing that, under certain conditions, a breather of the mean curvature flow must be a solitonic solution (self-shrinker, self-expander, or translator).

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