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No breathers theorem for some noncompact Ricci flows

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(Submitted on 2 May 2012)

Under suitable conditions near infinity and assuming boundedness of curvature tensor, we prove a no breathers theorem in the spirit of Ivey-Perelman for some noncompact Ricci flows. These include Ricci flows on asymptotically flat (AF) manifolds with positive scalar curvature. Since the method for the compact case faces a difficulty, the proof involves solving a new non-local elliptic equation which is the Euler-Lagrange equation of a scaling invariant log Sobolev inequality.

Subjects:	**Differential Geometry (math.DG)**; Analysis of PDEs (math.AP)
Cite as:	**arXiv:1205.0334 [math.DG]**
	(or **arXiv:1205.0334v1 [math.DG]** for this version)

Submission history

From: Qi Zhang S. [view email]
[v1] Wed, 2 May 2012 06:35:59 GMT (21kb)

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