1095-53-44   **Qi S. Zhang*** (`qizhang@math.ucr.edu`), Riverside, CA 92521. *A No breathers theorem for some noncompact Ricci flows.*

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, which is connected to the problem of irreversibility of world sheet in string theory. 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. (Received August 23, 2013)