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"Ground State Mass Concentration for L^2 Critical NLS below H^1 "

ABSTRACT:

Consider finite time blowup solutions of the L^2 -critical cubic focusing nonlinear Schrödinger equation on R^2 . Such functions, when in H^1 , are known to concentrate a fixed L^2 -mass (the mass of the ground state) at the point of blowup. Blowup solutions from initial data that is only in L^2 are known to concentrate at least a small amount of mass. In this talk, I will discuss the intermediate case of blowup solutions from initial data in H^s , with $1 > s > s_Q$, where $s_Q \leq s_Q$. The main result is that such solutions, when radially symmetric, concentrate at least the mass of the ground state at the origin at blowup time. This work was done jointly with J. Colliander, S. Raynor and C. Sulem.