

SHARP CONDITIONS OF GLOBAL WELL-POSEDNESS FOR  
NSL WITH COMBINED POWER TYPE NONLINEARITIES

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We study the Cauchy problem of nonlinear Schrödinger equation with combined power type nonlinearities. By introducing a family of potential wells we obtain some sharp conditions for global existence and finite time blow up of solutions when the initial energy is not positive or negative definite, which solves some open problems existing in [1] and fills the gaps existing in [2].

[1] Terence Tao, Monica Visan, Xiaoyi Zhang. *Comm. Partial Differential Equations*, **32**(7-9) (2007), 1281-1343

[2] Ji Shu, Jian Zhang. *J. Math. Anal. Appl.* **327**(2) (2007), 878–890