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Benjamin G Dodson* (benjadod@math.berkeley.edu). *Global well-posedness and scattering for critical nonlinear Schrödinger equations.*

In this talk we study the initial value problem

$$\begin{aligned}iu_t + \Delta u &= F(u), \\u(0, x) &= u_0 \in L^2(\mathbf{R}^d).\end{aligned}\tag{1}$$

Where $F(u) = \mu|u|^{4/d}u$, $\mu = +1$. We will show that (??) is globally well - posed and scattering for $u_0 \in L^2(\mathbf{R}^d)$. We will also discuss how the same techniques can be used in the study of the defocusing initial value problem

$$\begin{aligned}iu_t + \Delta u &= |u|^2u, \\u(0, x) &= u_0 \in \dot{H}_0^1(\Omega),\end{aligned}\tag{2}$$

with Dirichlet boundary conditions $u|_{\partial\Omega} = 0$, $\Omega = \mathbf{R}^4 \setminus \Sigma$, where Σ is a convex obstacle. (Received December 12, 2011)