
DANIELA DE SILVA, Johns Hopkins University

Low regularity solutions for a 2D quadratic non-linear Schrödinger equation

In this talk, we will discuss the initial value problem for the quadratic non-linear Schrödinger equation

$$iu_t - \Delta u = u^2$$

where $u: \mathbb{R}^2 \times \mathbb{R} \rightarrow \mathbb{C}$. In a recent work in collaboration with I. Bejenaru, we proved that this problem is locally well-posed in $H^s(\mathbb{R}^2)$ when $s > -1$. The critical exponent for this problem is $s_c = -1$, and previous work of J. Colliander, J. Delort, C. Kenig and G. Staffilani, established local well-posedness for $s > -3/4$.