Calderon-Zygmund Analysis Seminar

Monday, March 4, 3:45 pm, Ryerson 358

Poincare-Dulac normal form and unconditional uniqueness for the cubic NLS on $\mathbb{T}$

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Abstract. We discuss well-posedness of the one-dimensional periodic cubic NLS. In 1993, Bourgain introduced the so-called Fourier restriction norm method ($X^{s,b}$ spaces) and proved well-posedness of NLS in $L^2$. In this talk, we implement an infinite iteration scheme of the Poincare-Dulac normal form reductions and establish an a priori estimate for cubic NLS in $C([-T,T];H^s)$, $s \geq 0$, without using any auxiliary function spaces. This in particular yields unconditional uniqueness for $s \geq 1/6$. This is a joint work with Zihua Guo (Peking) and Soonsik Kwon (KAIST).