FIELDS

ABSTRACTS 1.2

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Mixed-norm estimates for the free Schrödinger equation

We consider when the Schrödinger operator $e^{it\Delta}$ is bounded from $\dot{H}^s(\mathbb{R}^n)$ to $L^q_x(\mathbb{R}^n, L^r_t(\mathbb{R}))$. When $q > r$, the Sobolev index s can be negative. For $n \geq 5$, we find the sharp range of such estimates up to endpoints. When $q < r$, we prove that the sharp estimates would follow if the maximal operator $\sup_{0<t<1} |e^{it\Delta} f|$ were bounded from $H^{1/4}(\mathbb{R}^n)$ to $L^2_{loc}(\mathbb{R}^n)$.