

Schrodinger maximal estimates and refined Strichartz type estimates

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We consider Carleson's pointwise convergence problem of Schrodinger solutions. It is shown that the solution to the free Schrodinger equation converges to its initial data almost everywhere, provided that the initial data is in the Sobolev space $H^s(\mathbb{R}^n)$ with $s > n/2(n+1)$ (joint with Larry Guth and Xiaochun Li in the case $n = 2$, and joint with Ruixiang Zhang in the case $n > 2$). This is sharp up to the endpoint, due to a counterexample by Bourgain. This pointwise convergence problem can be approached by estimates of Schrodinger maximal functions. The key ingredients are refined Strichartz type inequalities derived from Bourgain-Demeter decoupling theorem and induction on scales.