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## On $L^p$ -Estimates for the Time Dependent Schrödinger Operator on $L^2$

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**Abstract:** Let  $L$  denote the time-dependent Schrödinger operator in  $n$  space variables. We consider a variety of Lebesgue norms for functions  $u$  on  $\mathbb{R}^{n+1}$ , and prove or disprove estimates for such norms of  $u$  in terms of the  $L^2$  norms of  $u$  and  $Lu$ . The results have implications for self-adjointness of operators of the form  $L + V$  where  $V$  is a multiplication operator. The proofs are based mainly on Strichartz-type inequalities.



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