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A note on unique continuation for Schrödinger's operator.

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The following unique continuation theorem is proved for the Schrödinger operator. Let Δ be the Laplace operator; assume $u \in W^p(\mathbf{R}^{n+1})$, $|(i\partial/\partial t + \Delta)u(x,t)| \leq |V(x,t)u(x,t)|$ for some $V \in L^{(n+2)/2}(\mathbf{R}^{n+1})$ and $u = 0$ in some half-space of $\mathbf{R}^{(n+1)}$; then $u = 0$ on $\mathbf{R}^{n+1}$. This theorem is a corollary of "uniform Sobolev inequalities" for operators which are the Schrödinger operator plus lower-order terms in x.

Reviewed by *Jean Leray*