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Zeros of Schroedinger eigenfunctions at potential singularities.

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Let Ω be a domain in \mathbf{R}^n ($n \geq 3$), $0 \in \Omega$, and let $q \in L^1_{\text{loc}}(\Omega)$ be a nonnegative-valued function. The author establishes the following interesting fact: Suppose $u \in C(\Omega)$ satisfies the equation $-\Delta u + qu = \lambda u$ in the distribution sense for some λ . If $\limsup_{r \rightarrow 0} r^{2-n} \int_{|x| < r} q(x) dx = \infty$, then $u(0) = 0$.

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