Convergence rates appearing in long-time asymptotics for Hamilton-Jacobi equations in Euclidean n space

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Abtract: We consider the long-time asymptotics of the Cauchy problem for Hamilton-Jacobi equation $u_t(x,t) + H(x, Du(x,t)) = 0$ in $\mathbb{R}^n \times (0,\infty)$. Our goal of this talk is to give a sufficient condition in order that the rate of convergence of $u(x,t)$ to the state as $t \to \infty$ is $O(e^{-\theta t})$ for each $x \in \mathbb{R}^n$, where $\theta > 0$ is a constant. We also give an example such that if this sufficient condition is violated, then the rate of convergence is just equal to t^{-1} as $t \to \infty$ for each $x \in \mathbb{R}^n \setminus \{0\}$.