A supernova converts \( \sim 1 \, M_\odot \) to \( \nu \).
\[ |\Delta t| = \frac{1}{2} Lm_n^2 \frac{|E_1^2 - E_2^2|}{E_1^2 E_2^2} \]

Limit from SN1987a is \( m_{\nu_e} > 23 \text{ eV} \) (PDG)

Best you can do is \(~5-10 \text{ eV}\), which isn’t good enough.