

Bounds for best constants in subcritical Sobolev embeddings

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Abstract: We establish upper and lower estimates for the embedding constants related to the classical Sobolev embeddings $H_0^1(\Omega) \hookrightarrow L^p(\Omega)$, where $\Omega \subseteq \mathbb{R}^N$ is a bounded domain or the whole \mathbb{R}^N and $p \in (2, 2N/(N-2))$ if $N \geq 3$ or $p \in (2, +\infty)$ if $N = 2$. In dimension $N = 2$ we also derive the sharp asymptotic behavior of the embedding constant as $p \rightarrow \infty$. This is a joint work with Daniele Cassani and Cristina Tarsi.