ABSTRACT

If the gradient of $u(x)$ is n-th power locally integrable on Euclidean n-space, then the integral average over a ball B of the exponential of a constant multiple of $[u(x) - u_B|^{n/(n-1)}$, u_B = average of u over B, tends to 1 as the radius of B shrinks to zero – for quasi almost all center points. This refines a result of N. Trudinger (1967). We prove here a similar result for the class of gradients in $L^n(\log(e + L))^\alpha$, $0 \leq \alpha \leq n - 1$. The results depend on a capacity strong type inequality for these spaces.