1138-35-175 **Norisuke Ioku*** (ioku@ehime-u.ac.jp). *Canceling effects in higher-order Hardy-Sobolev inequalities.*

A classical Hardy-Sobolev type inequality involving weighted norms depending on powers of the distance function from the boundary $d(x)$ asserts that if Ω is a bounded Lipschitz domain, and $\alpha \neq p-1$, then there exists a constant C such that

$$\left\|\frac{u}{d}\right\|_{L^p(\Omega,d^\alpha)} \leq C \left(\|u\|_{L^p(\Omega,d^\alpha)} + \|\nabla u\|_{L^p(\Omega,d^\alpha)}\right) \tag{1}$$

for every $u \in C_0^\infty(\Omega)$, where $\|u\|_{L^p(\Omega,d^\alpha)} := \left(\int_\Omega d(x)^\alpha |u(x)|^p dx\right)^{\frac{1}{p}}$. On the other hand, inequality (1) fails for the critical value $\alpha = p-1$. The main purpose of this talk is to show that, this notwithstanding, suitable higher-order versions of inequality (1), which cannot just be obtained from (1) via iteration, do hold even when $\alpha = p-1$.

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