D. Azagra
Dept. of Math. Analysis and Applied Mathematics, Universidad Complutense, Madrid, Spain
`azagra@mat.ucm.es`

M. Drake
Department of Mathematics, Massachusetts Institute of Technology, Cambridge, U.S.A.
`mkdrake@mit.edu`

P. Hajłasz
Department of Mathematics, University of Pittsburgh, U.S.A.
`hajlasz@pitt.edu`

C^2-Lusin Approximation of Strongly Convex Bodies

We prove that, if $W \subset \mathbb{R}^n$ is a locally strongly convex body (not necessarily compact), then for any open set $V \supset \partial W$ and $\varepsilon > 0$, there exists a C^2 locally strongly convex body $W_{\varepsilon,V}$ such that $\mathcal{H}^{n-1}(\partial W_{\varepsilon,V} \triangle \partial W) < \varepsilon$ and $\partial W_{\varepsilon,V} \subset V$. Moreover, if W is strongly convex, then $W_{\varepsilon,V}$ is strongly convex as well.

Keywords: Convex function, convex body, approximation, Lusin property.

MSC: 26B25; 41A29, 52A20, 52A27.