

Jan Rataj, Luděk Zajíček

**Critical values and level  
sets of distance functions  
in Riemannian, Alexandrov and Minkowski spaces**

MATH-KMA-2010/321

February 2010

Submitted



## List of preprints released in this series

All preprints available on <http://www.karlin.mff.cuni.cz/kma-preprints/>  
E-mail contact to series administrator: [kma-prep@karlin.mff.cuni.cz](mailto:kma-prep@karlin.mff.cuni.cz)

## 1999 – 2008

For the details on papers submitted in specified years see the web page of the preprint series.

### 2009

- MATH-KMA-2009/292 Petr Hajek, Antonin Prochazka:  *$C^k$ -smooth approximations of LUR norms*
- MATH-KMA-2009/293 Martin Koc: *Upper porous sets in metric spaces which are not  $\sigma$ -lower porous*
- MATH-KMA-2009/294 Robert Cerny, Silvie Maskova: *On generalization of Moser's theorem in the critical case*
- MATH-KMA-2009/295 Piotr Hajlasz, Jan Maly: *On approximate differentiability of the maximal function*
- MATH-KMA-2009/296 Robert Cerny, Silvie Maskova: *A sharp form of an embedding into multiple exponential spaces*
- MATH-KMA-2009/297 W. Desch, E. Fasangova, J. Milota, G. Propst: *Spectrum of a viscoelastic boundary damping problem*
- MATH-KMA-2009/298 W. Desch, E. Fasangova, J. Milota, G. Propst: *Stabilization through viscoelastic boundary damping*
- MATH-KMA-2009/299 Jan Rataj, Ludek Zajicek: *Properties of distance functions on convex surfaces and Alexandrov spaces*
- MATH-KMA-2009/300 Stanislav Hencl: *Sharpness of the assumptions for the regularity of a homeomorphism*
- MATH-KMA-2009/301 Robert Cerny: *Integral functionals that are lower semicontinuous with respect to the weak topology on  $W^{1,p}(\Omega)$*
- MATH-KMA-2009/302 Jakub Duda, Ludek Zajicek: *On vector-valued curves that allow a  $C^{1,\alpha}$  parametrization*
- MATH-KMA-2009/303 Jiri Spurny: *Weights of boundaries of compact convex sets*
- MATH-KMA-2009/304 David A. Edwards, Ondrej Kalenda, Jiri Spurny: *A note on intersections of simplices*
- MATH-KMA-2009/305 Martin Koc: *On relations among metric derived numbers*
- MATH-KMA-2009/306 Domingo Garcia, Ondrej Kalenda, Manuel Maestr: *Envelopes of open sets and extending holomorphic functions on dual Banach spaces*
- MATH-KMA-2009/307 Stanislav Hencl, Jan Maly: *Jacobians of Sobolev homeomorphisms*
- MATH-KMA-2009/308 Petr Holicky, Roman Pol: *On a question by Alexey Ostrovsky concerning preservation of completeness*
- MATH-KMA-2009/309 Lukas Maly: *Calderon-type theorems for operators of non-standard endpoint behavior on Lorentz spaces*
- MATH-KMA-2009/310 Petr Holicky: *Preservation of completeness by some continuous maps*
- MATH-KMA-2009/311 Lubo Pick: *Weighted inequalities for integral and supremum operators*
- MATH-KMA-2009/312 Petr Holický: *Descriptive classes of sets in nonseparable spaces*
- MATH-KMA-2009/313 Maurizio Grasselli, Dalibor Prazak, Giulio Schimperna: *Attractors for nonlinear reaction-diffusion systems in unbounded domains via the method of short trajectories*
- MATH-KMA-2009/314 Antonio Aviles, Ondrej Kalenda: *Compactness in Banach space theory - selected problems*
- MATH-KMA-2009/315 Josef Danecek, Oldrich John, Jana Stara: *Morrey space regularity for weak solutions of Stokes systems with VMO coefficients*
- MATH-KMA-2009/316 Dalibor Prazak, Kumbakonam R. Rajagopal: *Mechanical oscillators described by a system of differential-algebraic equations*
- MATH-KMA-2009/317 Pavel Ludvik, Jiri Spurny: *Isomorphisms of spaces of continuous affine functions on compact convex sets with Lindelof boundaries*
- MATH-KMA-2009/318 Jiří Spurný: *Distances to spaces of affine Baire one functions*
- MATH-KMA-2009/319 Martin Koc: *Upper porosity with respect to measures*
- MATH-KMA-2009/320 Ondřej Kurka: *On binormality in non-separable Banach spaces*

## 2010

- MATH-KMA-2010/321 Jan Rataj, Luděk Zajíček: *Critical values and level sets of distance functions in Riemannian, Alexandrov and Minkowski spaces*
- MATH-KMA-2010/322 Stanislav Hencl: *Sobolev homeomorphism with zero jacobian almost everywhere*