

Libor Veselý, Luděk Zajíček

**On extensions of d.c. functions
and convex functions**

Preprint No. MATH-KMA-2008/283

October 2008

Submitted

Department of Mathematical Analysis, Faculty of Mathematics and Physics,
Charles University, Sokolovská 83, 186 75 Praha 8, Czech Republic

<http://www.karlin.mff.cuni.cz/kma-preprints/>

Cover print by Reprořředisko, Malostranské nám. 25, Praha 1 - Malá Strana
Design by Mirko Rokyta, picture of snowflake by Ondřej Kalenda
Current series administrator: Mirko Rokyta

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

1999 – 2006

For the details on the 219 papers submitted in years 1999-2006 see the web page of the preprint series.

2007

- [MATH-KMA 2007/220] Eva Murtinová: *On (weakly) Whyburn spaces.*
- [MATH-KMA 2007/221] Petr Holický, C.E. Weil, Luděk Zajíček: *A note on the Darboux property of Fréchet derivatives.*
- [MATH-KMA 2007/222] Josef Daněček, Oldřich John, Jana Stará: *Remarks on $C^{1,\gamma}$ regularity of weak solutions to elliptic systems with BMO gradients.*
- [MATH-KMA 2007/223] Tomáš Bárta: *Delayed quasilinear evolution equations with application to heat flow.*
- [MATH-KMA 2007/224] Dalibor Pražák: *Exponential attractors for abstract parabolic systems with bounded delay.*
- [MATH-KMA 2007/225] Tomáš Bárta: *A generation theorem for hyperbolic equations with coefficients of bounded variation in time.*
- [MATH-KMA 2007/226] Eduard Feireisl, Dalibor Pražák: *A stabilizing effect of a high-frequency driving force on the motion of a viscous, compressible, and heat conducting fluid.*
- [MATH-KMA 2007/227] A. Avilés, Ondřej Kalenda: *Fiber orders and compact spaces of uncountable weight.*
- [MATH-KMA 2007/228] Andrea Cianchi, Ron Kerman, Luboš Pick: *Trace inequalities and rearrangements.*
- [MATH-KMA 2007/229] Miroslav Hušek: *Urysohn universal space, its development and Hausdorff's approach.*
- [MATH-KMA 2007/230] Ondřej Kurka: *Reflexivity and sets of Fréchet subdifferentiability.*
- [MATH-KMA 2007/231] Miroslav Pošta: *On partial regularity of solutions to the quasilinear parabolic system up to the boundary.*
- [MATH-KMA 2007/232] Stanislav Hencl, Pekka Koskela, Jani Onninen: *Homeomorphisms of bounded variation.*
- [MATH-KMA 2007/233] Ondřej Kalenda: *On products with the unit interval.*
- [MATH-KMA 2007/234] Miroslav Bačák, Jiří Spurný: *Complementability of spaces of affine continuous functions on simplices.*
- [MATH-KMA 2007/235] Jaroslav Milota: *Invitation to mathematical control theory.*
- [MATH-KMA 2007/236] David Chodounský, Eva Murtinová: *Internal normality and internal compactness.*
- [MATH-KMA 2007/237] Ondřej Kurka: *On Borel classes of sets of Fréchet subdifferentiability.*
- [MATH-KMA 2007/238] Jiří Spurný: *The Dirichlet problem for Baire-two functions on simplices.*
- [MATH-KMA 2007/239] Jiří Spurný: *Automatic boundedness of affine functions.*
- [MATH-KMA 2007/240] Jiří Spurný, Miroslav Zelený: *Additive families of low Borel classes and Borel measurable selectors.*
- [MATH-KMA 2007/241] Petr Holický, Ondřej Kalenda, Libor Veselý, Luděk Zajíček: *Quotients of continuous convex functions on nonreflexive Banach spaces.*
- [MATH-KMA 2007/242] Libor Veselý, Luděk Zajíček: *On compositions of d.c. functions and mappings.*
- [MATH-KMA 2007/243] Luděk Zajíček: *A C^1 function which is nowhere strongly paraconvex and nowhere semiconcave.*
- [MATH-KMA 2007/244] Libor Veselý, Luděk Zajíček: *On vector functions of bounded convexity.*
- [MATH-KMA 2007/245] Tomáš Bárta: *Polynomial decay for solutions of hyperbolic integrodifferential equations.*
- [MATH-KMA 2007/246] Tomáš Bárta: *On R -sectorial derivatives on Bergman spaces.*
- [MATH-KMA 2007/247] Ondřej Kalenda: *Natural examples of Valdivia compact spaces.*
- [MATH-KMA 2007/248] Antonín Procházka: *Winning tactics in a geometrical game.*
- [MATH-KMA 2007/249] Étienne Matheron, Miroslav Zelený: *Descriptive set theory of families of small sets.*
- [MATH-KMA 2007/250] Jiří Spurný: *The boundary problem for L_1 -preduals.*
- [MATH-KMA 2007/251] Amiran Gogatishvili, Luboš Pick: *Calderón-type theorems for operators of non-standard endpoint behavior.*
- [MATH-KMA 2007/252] Marianna Csörnyei, Stanislav Hencl, Jan Malý: *Homeomorphisms in the Sobolev space $W^{1,n-1}$.*

- [MATH-KMA 2007/253] Jiří Spurný: *On the Dirichlet problem of extreme points for non-continuous functions.*
- [MATH-KMA 2007/254] Miroslav Bačák: *Point simpliciality in the Choquet theory.*
- [MATH-KMA 2007/255] Ondřej Kurka: *Structure of the set of norm-attaining functionals on strictly convex spaces.*

2008

- [MATH-KMA 2008/256] Miroslav Bulíček, Dalibor Pražák: *A note on the dimension of the global attractor for abstract semilinear hyperbolic problem.*
- [MATH-KMA 2008/257] Eva Fašangová, Pedro J. Miana: *Hilbert, Dirichlet and Fejér families of operators arising from C_0 -groups and cosine functions.*
- [MATH-KMA 2008/258] Josef Daněček, Oldřich John, Jana Stará: *On the Hölder continuity of gradient of solutions to a class of elliptic systems.*
- [MATH-KMA 2008/259] Jakub Duda, Luděk Zajíček: *Semiconvex functions: representations as suprema of smooth functions and extensions.*
- [MATH-KMA 2008/260] Jakub Duda, Luděk Zajíček: *Curves in Banach spaces which allow a C^2 parametrization.*
- [MATH-KMA 2008/261] Václav Vlasák, Miroslav Zelený: *Compact sets of continuity for Borel functions.*
- [MATH-KMA 2008/262] Ondřej Kalenda, Jiří Spurný: *Boundaries of compact convex sets and fragmentability.*
- [MATH-KMA 2008/263] Ondřej Kurka, Dušan Pokorný: *Porosity and the Darboux property of Fréchet derivatives.*
- [MATH-KMA 2008/264] Miroslav Kačena, Jiří Spurný: *Affine images of compact convex sets and maximal measures.*
- [MATH-KMA 2008/265] Miroslav Kačena: *Products and projective limits of function spaces.*
- [MATH-KMA 2008/266] Miroslav Bačák: *Minimal measures and nonsimplicial function cones.*
- [MATH-KMA 2008/267] Miroslav Bačák, Petr Hájek: *Mazur intersection property for Asplund spaces.*
- [MATH-KMA 2008/268] Stanislav Hencl: *On the weak differentiability of $u \circ f^{-1}$.*
- [MATH-KMA 2008/269] Amiran Gogatishvili, Luboš Pick, Jan Schneider: *The rearrangement-invariant hull of a Besov space.*
- [MATH-KMA 2008/270] Ron Kerman, Luboš Pick: *Explicit formulas for optimal rearrangement-invariant norms in Sobolev imbedding inequalities.*
- [MATH-KMA 2008/271] Petr Holický: *Decompositions of Borel bimeasurable mappings between complete metric spaces.*
- [MATH-KMA 2008/272] Luboš Pick: *Optimality of function spaces in Sobolev embeddings.*
- [MATH-KMA 2008/273] Jiří Spurný: *Borel sets and functions in topological spaces.*
- [MATH-KMA 2008/274] Miroslav Kačena, Jiří Spurný: *Affine Baire functions on Choquet simplices.*
- [MATH-KMA 2008/275] Jiří Jelínek, Dalibor Pražák: *On the sign of Colombeau functions and applications to conservation laws.*
- [MATH-KMA 2008/276] Warren B. Moors, Jiří Spurný: *On the topology of pointwise convergence on the boundaries of L_1 -predual.*
- [MATH-KMA 2008/277] Hugo Beirão da Veiga, Petr Kaplický, Michael Růžička: *Boundary regularity of shear thickening flows.*
- [MATH-KMA 2008/278] Petr Hájek, Gilles Lancien, Antonín Procházka: *Weak* dentability index of spaces $C([0, \alpha])$.*
- [MATH-KMA 2008/279] Robert Deville, Antonín Procházka: *Parametric variational principle and residuality.*
- [MATH-KMA 2008/280] Michal Kraus: *A note on the uniform approximation of continuous affine functions.*
- [MATH-KMA 2008/281] Tomáš Bárta: *Smooth solutions of Volterra equations via semigroups.*
- [MATH-KMA 2008/282] Tomáš Bárta: *Delayed quasilinear evolution equations with BV – coefficients.*
- [MATH-KMA 2008/283] Libor Veselý, Luděk Zajíček: *On extensions of d.c. functions and convex functions.*