Petr Kaplický, Dalibor Pražák

Lyapunov exponents and the dimension of the attractor for $2d$ shear-thinning incompressible flow

Preprint No. MATH-KMA-2006/192

March 2006

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 Reprostředisko, 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 – 2004

For the details on the 122 papers submitted in years 1999 – 2004 see the web page of the preprint series.

2005

[MATH-KMA-2005/154] Petr Holický a Václav Komínek: *Descriptive properties of mappings between nonseparable Luzin spaces.*

[MATH-KMA-2005/155] Jiří Spurný: *Affine Baire-one functions on compact convex sets.*

[MATH-KMA-2005/156] Jakub Duda: *On metric and w^*-differentiability of pointwise Lipschitz mappings.*

[MATH-KMA-2005/157] Jakub Duda, Luděk Zajíček: *Curves in Banach spaces – differentiability via homeomorphisms.*

[MATH-KMA-2005/158] David Pavlica, Luděk Zajíček: *Morse-Sard theorem for d.c. functions and mappings on R^2.*

[MATH-KMA-2005/159] David Pavlica, Luděk Zajíček: *On the directions of segments and r-dimensional balls on a convex surface.*

[MATH-KMA-2005/160] Jan Malý, Miroslav Zelený: *A note on Buczolich's solution of the Weil gradient problem: a construction based on an infinite game.*

[MATH-KMA-2005/161] Ron Kerman, Luboš Pick: *Optimal Sobolev Imbedding Spaces.*

[MATH-KMA-2005/162] Jakub Duda: *On positively differentiable curves with values in Banach spaces.*

[MATH-KMA-2005/163] Jaroslav Fuka, Petr Holický: *On a weak form of uniform convergence.*

[MATH-KMA-2005/164] Eva Murtinová: *On products of discretely generated spaces.*

[MATH-KMA-2005/165] Ron Kerman, Luboš Pick: *Compactness of Sobolev imbeddings involving rearrangement-invariant norms.*

[MATH-KMA-2005/166] Dalibor Pražák: *A remark on characterization of entropy solutions using Colombeau's algebra of generalized functions.*

[MATH-KMA-2005/167] Ondřej Kalenda, Jiří Spurný: *A solution of the abstract Dirichlet problem for Baire-one functions.*

[MATH-KMA-2005/168] Dalibor Pražák: *The 2d Navier-Stokes equations in the form of ODEs with bounded delay.*

[MATH-KMA-2005/169] Ondřej Kalenda: *Descriptive hierarchy of complex Banach spaces.*

[MATH-KMA-2005/170] Robert Černý: *Local monotonicity of measures supported by curves in R^n.*

[MATH-KMA-2005/171] É. Matheron, S. Solecki, M. Zelený: *Trichotomies for ideals of compact sets.*

[MATH-KMA-2005/172] Nguyen Duc Huy, Jana Stará: *On existence and regularity of solutions to a class of generalized stationary Stokes problem.*

[MATH-KMA-2005/173] Petr Kaplický, Dalibor Pražák: *Differentiability of the solution operator and the dimension of the attractor for certain power-law fluids.*

[MATH-KMA-2005/174] Jan Pelant, Petr Holický, Ondřej Kalenda: *$C(K)$ spaces which cannot be uniformly embedded into $c_0(\Gamma)$.*

[MATH-KMA-2005/175] Jan Rychtář, Jiří Spurný: *On weak* Kadec-Klee norms.*

[MATH-KMA-2005/176] Josef Daněček, Oldřich John, Jana Stará: *Structural conditions guaranteeing $C^{1,\gamma}$ - regularity of weak solutions to nonlinear second order systems.*

[MATH-KMA-2005/177] Josef Málek, Dalibor Pražák, Mark Steinhauer: *On the existence and regularity of solutions for degenerate power-law fluids.*

[MATH-KMA-2005/178] Jan Malý, David Swanson, William P. Ziemer: *Fine behavior of functions whose gradients are in an Orlicz space.*

[MATH-KMA-2005/179] Jiří Spurný: *F_σ–additive covers of Čech complete and scattered–K–analytic spaces.*

[MATH-KMA-2005/180] Marianna Csörnyei, Jan Kališ, Luděk Zajíček: *Whitney and 1-critical arcs.*

[MATH-KMA-2005/181] María Carro, Amiran Gogatishvili, Joaquim Martín, Luboš Pick: *Weighted inequalities involving two Hardy operators with applications to embeddings of function spaces.*

[MATH-KMA-2005/182] Luděk Zajíček: *On sets of non-differentiability of Lipchitz and convex functions.*

[MATH-KMA-2005/183] Jiří Spurný: *G_δ-additive families in absolute Souslin spaces.*

[MATH-KMA-2005/184] Dalibor Pražák: *Exponential attractor for a planar shear-thinning flow.*

[MATH-KMA-2005/185] Robert Černý: *Relaxation of an area-like functional for the function $\frac{x}{|x|}$.*

[MATH-KMA-2005/186] Miroslav Hušek: *Characters of ultrafilters and tightness of products of fans.*

[MATH-KMA-2005/187] Ondřej Kalenda: *Complex Banach spaces with Valdivia dual unit ball.*

[MATH-KMA-2005/188] Amiran Gogatishvili, Luboš Pick: *A reduction theorem for supremum operators.*

2006

[MATH-KMA-2006/189] Jaroslav Lukeš, Tomáš Mocek, Ivan Netuka: *Exposed sets in potential theory.*

[MATH-KMA-2006/190] Ondřej Kalenda: *A converse to Amir-Lindenstrauss theorem in complex Banach spaces.*

[MATH-KMA-2006/191] Ondřej Kalenda: *(I)-envelopes of closed convex sets in Banach spaces.*

[MATH-KMA-2006/192] Petr Kaplický, Dalibor Pražák: *Lyapunov exponents and the dimension of the attractor for* 2*d shear-thinning incompressible flow.*