

Curriculum vitae of Ondřej Kreml

- February 26, 1983: born in Šumperk
- 2001 - 2006: undergraduate studies at the Faculty of Mathematics and Physics, Charles University in Prague, mathematical modeling, diploma thesis "Axially symmetric flow of a viscous newtonian fluid", supervisor Milan Pokorný
- 2005 - 2011: teaching at the Faculty of Mathematics and Physics, Charles University in Prague - exercises of mathematical analysis
- 2007 - 2010: Ph.D. student at the Faculty of Mathematics and Physics, Charles University in Prague, mathematical modeling, PhD thesis "Mathematical analysis of models for viscoelastic fluids", supervisor Milan Pokorný
- 2010 - 2015: postdoc position at Institute of Mathematics, Czech Academy of Sciences
- 2012 - 2013: 12 months postdoc position at University of Zurich
- 2016 - present: researcher position at Institute of Mathematics, Czech Academy of Sciences

Awards:

- 2015: Otto Wichterle Premium for young researchers
- 2006: winner of the czech-slovak competition SVOČ in the category "mathematical analysis"

Longer academic stay:

- October 2012 - January 2013, May 2013 - December 2013: University of Zurich, Switzerland, working on project SCIEX 11.152

Grants:

- 2017 - present, Czech Science Foundation, junior project 17-01694Y *Mathematical analysis of partial differential equations describing inviscid flows*, principal investigator
- 2017 - 2018, Neuron Impuls Junior project *Mathematical analysis of hyperbolic conservation laws*, principal investigator
- 2017 - 2018, Ministry of Education, Youth and Sports project no. 7AMB16PL060 *Flow of viscous fluid in time dependent domain*, team member
- 2016 - 2018, Czech Science Foundation, project 16-03230S *Thermodynamically consistent models for fluid flows: mathematical theory and numerical solution*, team member
- 2013 - 2016, Czech Science Foundation, project GA13-00522S *Qualitative analysis and numerical solution of problems of flows in generally time-dependent domains with various boundary conditions*, team member
- 2012 - 2013, SCIEX, project 11.152 *TraFlu: Transport phenomena in continuum fluid dynamics*, fellow
- 2011 - 2013, Czech Science Foundation, project GAP201/11/1304 *Flow of fluids in domains with variable geometry*, team member

- 2007 - 2009, Grant Agency of the Charles University, project 2509/2007 *Mathematical models of viscoelastic fluids - theoretical and computational analysis*, principal investigator
- 2006 - 2009, Basic research center, funded by Ministry of Education, Youth and Sports, no. LC06052 *Nečas Center for Mathematical modeling*, graduate student and Ph.D. student

Other:

- Reviewing for various journals in the field of mathematical analysis of partial differential equations

LIST OF PUBLICATIONS

- [1] Kreml, O.; Pokorný, M.: *A regularity criterion for the angular velocity component in axisymmetric Navier-Stokes equations*. Electron. J. Differential Equations (2007), no. 08, 10 pp. (electronic).
- [2] Kreml, O.; Pokorný, M.: *On the local strong solutions for a system describing the flow of a viscoelastic fluid*. Nonlocal and abstract parabolic equations and their applications, 195–206, Banach Center Publ., **86**, Polish Acad. Sci. Inst. Math., Warsaw, 2009.
- [3] Kreml, O.; Pokorný, M.: *On the local strong solutions for the FENE dumbbell model*. Discrete Contin. Dyn. Syst. Ser. S **3** (2010), no. 2, 311–324.
- [4] Konieczny, P.; Kreml, O.: *On the 3D steady flow of a second grade fluid past an obstacle*. J. Math. Fluid Mech. **14** (2012), no. 2, 295–309.
- [5] Feireisl, E., Karper, T., Kreml, O., Stebel, J.: *Stability with respect to domain of the low Mach number limit of compressible viscous fluids*. Mathematical Models and Methods in Applied Sciences **23** (2013), no. 13, 2465–2493.
- [6] Kreml, O.; Nečasová, Š.; Pokorný, M.: *On the steady equations for compressible radiative gas*. Z. Angew. Math. Phys. **64** (2013), no. 3, 539–571.
- [7] Feireisl, E.; Kreml, O.; Nečasová, Š.; Neustupa, J.; Stebel, J.: *Weak solutions to the barotropic Navier-Stokes system with slip boundary conditions in time dependent domains*. J. Differential Equations **254** (2013), no. 1, 125–140.
- [8] Feireisl, E.; Kreml, O.; Nečasová, Š.; Neustupa, J.; Stebel, J.: *Incompressible limits of fluids excited by moving boundaries*. SIAM J. Math. Anal. **46** (2014), no. 2, 1456–1471.
- [9] Chiodaroli, E.; Kreml, O.: *On the Energy Dissipation Rate of Solutions to the Compressible Isentropic Euler System*. Arch. Rational Mech. Anal. **214** (2014), 1019–1049.
- [10] Chiodaroli, E.; Feireisl, E.; Kreml, O.: *On the weak solutions to the equations of a compressible heat conducting gas*. Ann. Inst. H. Poincaré Anal. Non Linéaire **32** (2015), no. 1, 225–243.
- [11] Chiodaroli, E.; De Lellis, C.; Kreml, O.: *Global ill-posedness of the isentropic system of gas dynamics*. Comm. Pure Appl. Math. **68** (2015), no. 7, 1157–1190.
- [12] Feireisl, E.; Kreml, O.: *Uniqueness of rarefaction waves in multidimensional compressible Euler system*, J. Hyperbolic Differ. Equ. **12** (2015), no. 3, 489–499.
- [13] Feireisl, E.; Kreml, O.; Mácha, V.; Nečasová, Š.: *On the low Mach number limit of compressible flows in exterior moving domains*, J. Evol. Equ. **16** (2016), no. 3, 705–722.
- [14] Kreml, O.; Pokorný, M.; Šalom, P.: *On the global existence for a regularized model of viscoelastic non-newtonian fluid*. Colloq. Math. **139** (2015), no. 2, 149–163.
- [15] Feireisl, E.; Kreml, O.; Vasseur, A.: *Stability of the isentropic Riemann solutions of the full multi-dimensional Euler system*, SIAM J. Math. Anal. **47** (2015), no. 3, 2416–2425.
- [16] Chiodaroli, E.; Feireisl, E.; Kreml, O.; Wiedemann, E.: *A-free Rigidity and Applications to the Compressible Euler system*, Ann. Mat. Pura Appl. (4) **196** (2017), no. 4, 1557–1572.

- [17] Kreml, O.; Mácha, V.; Nečasová, Š.; Wróblewska-Kamińska, A.: *Weak solutions to the full Navier-Stokes-Fourier system with slip boundary conditions in time dependent domains*, J. Math. Pures Appl. (9) **109** (2018), 67–92.
- [18] Březina, J.; Kreml, O.; Mácha, V.: *Dimension reduction for the full Navier-Stokes-Fourier system*. J. Math. Fluid Mech. **19** (2017), no. 4, 659–683.
- [19] Chiodaroli, E.; Kreml, O.: *Non-uniqueness of admissible weak solutions to the Riemann problem for isentropic Euler equations*, Nonlinearity **31** (2018), no. 4, 1441–1460.
- [20] Kreml, O.; Mucha, P.B.; Pokorný, M.: *Existence and Uniqueness of Strong Stationary Solutions*. In: Giga Y., Novotny A. (eds) Handbook of Mathematical Analysis in Mechanics of Viscous Fluids. (2016) Springer, Cham.
- [21] Březina, J.; Chiodaroli, E.; Kreml, O.: *Contact discontinuities in multi-dimensional isentropic euler equations*, Electron. J. Differential Equations **2018** (2018), No. 94, 1–11.
- [22] Feireisl, E.; Klingenberg, Ch.; Kreml, O.; Markfelder, S.: *On oscillatory solutions to the complete Euler system*, Preprint (2017).
- [23] Kreml, O.; Mácha, V.; Nečasová, Š.; Wróblewska-Kamińska, A.: *Flow of heat conducting fluid in a time dependent domain*, accepted to ZAMP.
- [24] Kreml, O.; Nečasová, Š.; Piasecki, T.: *Local existence of strong solutions and weak-strong uniqueness for the compressible Navier-Stokes system on moving domains*, Preprint (2017).
- [25] Gwiazda, P.; Kreml, O.; Świerczewska-Gwiazda, A.: *Dissipative measure valued solutions for general conservation laws*, Preprint (2018).
- [26] Al Baba, H.; Klingenberg, Ch.; Kreml, O.; Mácha, V.; Markfelder S.: *Non-uniqueness of admissible weak solution to the Riemann problem for the full Euler system in 2D*, Preprint (2018).