

Univerzita Karlova v Praze
Matematicko-fyzikální fakulta

Vás zve na čtrnáctou

Jarníkovskou přednášku

Tekutiny v pohybu / Fluids in Motion

kterou přednese

prof. RNDr. Eduard Feireisl, DrSc.

(Matematický ústav
Akademie věd ČR, v.v.i.)

**ve středu dne 7. října 2015
ve 14.00 hod.**

v posluchárně V. Jarníka (M1),
děkanát MFF UK, 2. patro
Ke Karlovu 3, Praha 2

Abstract: Despite the enormous progress in the area of real-world applications of fluid mechanics ranging from construction of airplanes, ships and cars over weather prediction, medical applications including the blood flow and tumor growth modeling to the evolution of gaseous stars in cosmology, and despite a concerted effort of generations of outstanding mathematicians, the mathematical issues related to fundamental equations of fluid mechanics remain either unsolved or very poorly understood. An iconic example of such problem – the Navier-Stokes system – remains on the list of unsolved “millenium problems”. This lecture attempts to survey the state-of-art in mathematical fluid dynamics and to discuss some recent results concerning well-posedness of the underlying equations and systems. In particular, we introduce various concepts of solutions and compare their role in the development of the mathematical theory from the historical perspective. We conclude by presenting certain disturbing examples of ill-posedness obtained recently by the method of convex integration.

Eduard Feireisl was born in 1957 in Kladno (Czechoslovakia). He finished the Faculty of Mathematics and Physics, Charles University in Prague, in 1982, and obtained his Ph.D. – equivalent (CSc.) at the Czechoslovak Academy of Sciences in 1986. In 1999 he got the DrSc. title, in 2009 he was promoted docent, and since 2011 he is the full professor of Charles University. E. Feireisl is mainly interested in mathematical theory for partial differential equations (PDEs) with special focus on the equations of fluid mechanics, and is one of the excellent representatives of the Czech school on PDEs founded by Jindřich Nečas. E. Feireisl was twice awarded the Prize of the Academy of Sciences of the Czech Republic (2004, 2009), he also got the prestigious grant Praemium Academiae (2007-2013). In 2013 he was successful in obtaining highly recognized European grant, ERC Advanced Grant (AdG2012) entitled „Mathematical Thermodynamics of Fluids“. E. Feireisl is a member of editorial boards of more than 15 international journals. During the last 10 years he was invited as a plenary speaker to more than 15 international conferences. He published 3 monographs, 15 chapters in collective monographs and more than 220 scientific papers. His work was cited more than 2400 times by more than 900 authors.