Antonín Novotný

Eduard Čech

Institute of Mathematics,
Czech Academy of Sciences
cordially invites you
to the online lecture

Some elements
of mathematical analysis
# of compressible flows

given by

Antonín Novotný

University of Toulon

on Wednesday 21 April 2021 at 2 p.m.
via Zoom and YouTube.

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It is the seventeenth lecture in the cycle of
representative talks organized to honour

Professor Eduard Čech,

one of the most prominent
Czech mathematicians
of modern history and founder
of the Institute of Mathematics,
Czech Academy of Sciences.

Tomáš Vejchodský, director
http://www.math.cas.cz

Some elements of mathematical analysis of compressible flows

The theory of renormalized solutions to the transport equations by Di-Perna and Lions belongs to one of the main building blocks of the nowadays classical approach to the existence of weak solutions to the compressible Navier-Stokes equations.

Most of the difficulties related to the attempts to extend the existence results to general boundary data and/or to simple models of mixtures of non-interacting fluids are intimately connected with the properties of the transport equations.

In the present talk, we intend to overfly the classical approach by Lions and Feireisl to the existence of weak solutions to the compressible Navier-Stokes equations in the classical situation to detect these difficulties.

Finally, we shall discuss possible extensions to the theory of renormalized solutions that allow us to overcome the critical points mentioned above. These results deal with families of transport equations, and they are of independent interest.

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