



Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg
Lehrstuhl für Wissenschaftliches Rechnen IX

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Loss of regularity in hyperbolic Cauchy problems

In this talk we consider linear hyperbolic operators with low regularity coefficients. It is well-known that regularity assumptions weaker than Lipschitz on the coefficients of the operator entail in general a loss of regularity of the solution during the time evolution. This phenomenon has drastic consequences both in the well-posedness theory and in the study of the control problem. We will mainly focus on the former issue.

Due to the loss of regularity of the solutions, well-posedness of the Cauchy problem can be recovered just in H^∞ , with a loss of a finite number of derivatives. In addition, a sharp classification is given about the loss of derivatives which occurs, depending on the modulus of continuity of the coefficients. Here we will see how to improve these results for weaker hypotheses, the so-called Zygmund conditions. These assumptions are somehow second order conditions, since they concern the second variation of a function, rather than its modulus of continuity. They reveal to be still important for the analysis of hyperbolic Cauchy problems, thanks to a suitable modification of the energy functional.

This talk is based on joint works with *Ferruccio Colombini* (Pisa), *Daniele Del Santo* (Trieste) and *Guy Métivier* (Bordeaux).

Ort: Raum 30.02.003 (2. Stock) (Mathegeb. 30 West)

Zeit: Montag, 26.06.2017, 13.00 Uhr

Zu diesem Vortrag laden wir Sie herzlich ein.

gez. Prof. Dr. Alfio Borzi
gez. Prof. Dr. Roland Griesmaier