



Institut für  
Angewandte Mathematik



Leibniz  
Universität  
Hannover

Institut für Angewandte Mathematik  
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## Oberseminar Analysis und Theoretische Physik

**Prof. Ulrik Skre Fjordholm  
(NTNU, Trondheim)**

### **Statistical solutions on hyperbolic conservation laws**

For multi-D hyperbolic conservation laws such as the compressible Euler equations, there is a great lack of stability, existence and uniqueness theory, and certain Cauchy problems are provably unstable with respect to initial data. Numerical methods for multi-D gas flow can be highly unstable with respect to initial data and show no sign of convergence.

These facts indicate an inherent uncertainty in the solution, even when the initial data is given exactly. We build the concept of statistical solutions, which are probability measures on  $L^1$  satisfying certain evolution equations. For scalar conservation laws we impose entropy conditions which imply existence, uniqueness and stability. We also discuss the connection with so-called measure-valued solutions.

**Dienstag, 25. Oktober 2016, 15:00 Uhr, Raum c311  
Hauptgebäude der Universität**

Über Ihren Besuch würden sich freuen:

Prof. Dr. Wolfram Bauer  
Prof. Dr. Joachim Escher  
Prof. Dr. Olaf Lechtenfeld  
Prof. Dr. Elmar Schrohe  
Prof. Dr. Christoph Walker  
Prof. Dr. E. Wiedemann