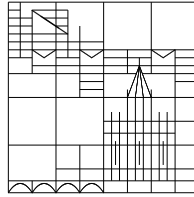Universität Konstanz

Fachbereich
Mathematik und Statistik

Prof. Dr. Robert Denk
Prof. Dr. Heinrich Freistühler
Prof. Dr. Reinhard Racke
Prof. Dr. Oliver Schnürer

Im

Oberseminar Partielle Differentialgleichungen

gibt es am

Dienstag, dem 21. Januar 2014,

einen Vortrag von

Dr. Carla Cederbaum

(Universität Tübingen)

"PDEs describing isolated systems subject to gravitation"

Beginn: **15:15 Uhr**

Raum: **D 431**

Interessenten sind herzlich willkommen!

R. Denk, H. Freistühler, R. Racke, O. Schnürer

Abstract: Isolated gravitating systems such as stars, black holes or galaxies play an important role both in Newton's theory of gravity (NG) and in general relativity (GR). Both theories use PDEs to describe such systems. In NG, the fundamental equation is an elliptic (Poisson) PDE, in GR we encounter (degenerate) elliptic and hyperbolic PDEs. Those equations are related as NG arises as the so called "Newtonian limit" of GR. By considering this limiting procedure and its implications, it becomes possible to imitate certain existence and uniqueness results from the theory of the Poisson equation in GR (for static systems). Also, studying the analogies and differences between the theories allows us to improve our understanding of physical concepts and phenomena. In the talk, we will introduce the fundamental equations of GR and their interpretation as well as the Newtonian limit and its implications, focusing in particular on the concept of "center of mass".

(invited by Oliver Schnürer)