EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

**Mathematisch-
Naturwissenschaftliche
Fakultät**

Fachbereich Mathematik

**AB Geometrische Analysis und
Mathematische Relativitätstheorie**

Wintersemester 2014/15

**Oberseminar
Geometrische Analysis und Mathematische Relativitätstheorie**

Am Donnerstag, den **08.01.2015** spricht um **14 Uhr c. t.** im Raum N16

Maximilian Thaller
(Universität Wien)

über das Thema

**Spherically Symmetric, Static Solutions of the Einstein-Vlasov System with
Non-Vanishing Cosmological Constant**

We consider the static Einstein-Vlasov system in spherical symmetry. Existence of different types of solutions to this system for zero cosmological constant has been shown for the isotropic and anisotropic case by Rein-Rendall, Rein, and Wolansky. In this talk I shortly review existing results on static solutions and describe a method to prove existence of static solutions to the Einstein-Vlasov system with positive cosmological constant. The energy density and the pressure of these solutions have compact support and outside a finite ball these solutions are identical to a Schwarzschild-deSitter spacetime. Moreover other classes of new non-vacuum solutions that we have construced will be presented like solutions containing a black hole surrounded by Vlasov matter for both negative and positive cosmological constants. Finally, the global structure of the constructed non-vacuum spacetimes will be discussed with the help of Penrose diagrams. The results presented in the talk are joint work with H. Andréasson and D. Fajman.

Hierzu wird herzlich eingeladen.

C. Cederbaum, G. Huisken