EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

Mathematisch-
Naturwissenschaftliche
Fakultät

Fachbereich Mathematik
AB Geometrische Analysis,
Differentialgeometrie und
Relativitätstheorie

Oberseminar
Geometrische Analysis, Differentialgeometrie und Relativitätstheorie

Am Donnerstag, den **06.11.2025** spricht um **14 Uhr s.t.** im Raum **C4H33 und über Zoom**

Prof. Dr. David Maxwell

(University of Alaska Fairbanks)

über das Thema

The Conformal Method and Hamiltonian General Relativity

The conformal method is a workhorse tool for building solutions of the Einstein constraint equations, especially those with constant mean curvature. One frequent perspective on the technique is that it is simply a handy tool, a frequently effective mathematical artifice. In this talk we demonstrate instead that the conformal method is deeply rooted in the Hamiltonian approach to general relativity. We start with a careful analysis of the Gauss constraint $\operatorname{div} \mathrm{E} = \rho$ of electromagnetism and describe an approach, grounded in Hamiltonian field theory, for generating its solutions. Then, after an unexpected detour into temporal wave gauge in general relativity, we exhibit a modern understanding of conformal method as an immediate generalization of the toy-model approach to the Gauss constraint. If time permits, we discuss how these ideas led to recent advances in formulating the conformal method in the non-vacuum setting, with applications to charged fluids.

Den Zoom-Link erhalten Sie per E-Mail von Martina Neu.

For participating online, please sign up by sending an email to Martina Neu.

Hierzu wird herzlich eingeladen.

Rodrigo Avalos, Carla Cederbaum, Gerhard Huisken, zusammen mit Jan Metzger (Potsdam)