EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

Mathematisch-
Naturwissenschaftliche
Fakultät

Fachbereich Mathematik
AB Geometrische Analysis,
Differentialgeometrie und
Relativitätstheorie

Oberseminar
Geometrische Analysis, Differentialgeometrie und Relativitätstheorie

Am Donnerstag, den **22.10.2026** spricht um **14 Uhr** im Raum **C4H33**

Dr. Markus Wolff
(University of Vienna)
über das Thema

On the uniqueness of surfaces of constant spacetime mean curvature in asymptotically Schwarzschildean lightcones

"We prove the uniqueness of surfaces of constant spacetime mean curvature (STCMC) in asymptotically Schwarzschildean lightcones under a suitable C^2-control on the graph function. A spacelike cross section of a null hypersurface is called an STCMC surface if its codimension-2 mean curvature vector in the ambient spacetime has constant length. In joint work with Klaus Kröncke, we have constructed asymptotic foliations of asymptotically Schwarzschildean lightcones by STCMC surfaces in previous work in analogy to the seminal work of Huisken-Yau. We note that foliations by STCMC surfaces have been first constructed by Cederbaum-Sakovich in the case of asymptotically Euclidean initial data sets.
Since we have already shown that STCMC surfaces in this setting are unique within a suitable a-priori class of surfaces in our previous work, the main strategy is to show that the weaker restrictions on the surface imposed here are sufficient to show that the surface lies within the aforementioned a-priori class. This significantly improves the uniqueness properties of the constructed STCMC foliation a-posteriori.
In particular, any STCMC foliation that forms an asymptotically flat background foliation of the asymptotically Schwarzschildean lightcone has to agree with the constructed foliation. "

This is joint work with Klaus Kröncke.

Hierzu wird herzlich eingeladen.
C. Cederbaum, G. Huisken, J. Metzger