



Einladung zur öffentlichen Defensio von

Benedict Schinnerl

Thema der Dissertation

Non-smooth Spacetime Geometry

Abstract:

In the theory of general relativity, in particular in more PDE oriented approaches, results for low differentiability assumptions have gained more and more prominence in recent years. This dissertation deals with Lorentzian geometry for continuously differentiable metrics and in particular with singularity theorems. In this low regularity setting the theorem of Hawking-Penrose as well as the Gannon-Lee theorem are proved.

Curvature for the class of C^1 -metrics is defined distributionally, thus the proofs required a rigorous treatment of distributional curvature and energy conditions. Further the geodesic equation no longer necessarily admits unique solutions nor do they need to be length maximizing. Consequently branching of geodesics was studied and it was further also shown that any causal length-maximizer must solve the geodesic equation, both of which are also important in proving the theorems.

Prüfungssenat

Univ.-Prof. Mag. Dr. Roland Donniger
(Vorsitz)

ao. Univ.-Prof. Mag. Dr. Roland Steinbauer
(Universität Wien)

Prof. Dr. Chris Fewster
(University of York)

Prof. Dr. Miguel Sanchez Caja
(University of Granada)

Zeit:

11. Juli 2022, 10:30 Uhr

11 July 2022 10:30 am Vienna

Ort:

Topic: Defensio Schinnerl
Time: Jul 11, 2022 10:30 AM Vienna

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