



Sommersemester 2026

Lecture

The Positive Mass Theorem

Lecturer: Prof. Dr. Jan Metzger

Start: Monday, 13th April 2026

Time: Mondays, 14:15-16:00

Place: Hörsaal N14 / M1 (C-Bau [Mathe/Physik])

This lecture will take place in a **hybrid** fashion and is shared between the University of Potsdam and the University of Tübingen.

Please enroll in the corresponding Moodle-course for further information, including the Zoom-data:

<https://moodle2.uni-potsdam.de/course/view.php?id=49290>

Tutorial: 2 hours/week **Tutor:** TBA **Start:** TBA

Time: TBA **Place:** TBA

Description: This lecture revolves around fundamental theorems in Geometric Analysis, which have applications in Mathematical Relativity. The center of gravity is the so called Positive Mass Theorem, which basically says that non-negative matter density implies non-negative total mass. We discuss the (by now) classical proofs using minimal surfaces and more recent proofs based on level sets of carefully chosen functions, which arise as solutions to an elliptic partial differential equation. Interesting follow-up questions such as rigidity and stability of the case of zero or near zero total mass will be a substantial part of the lecture.

