



## Kolloquium über Reine Mathematik

Einladung zu einem Vortrag

**Dienstag, 29. Oktober 2024**

17 Uhr, Geom H4

Prof. Karin Melnick  
(Université du Luxembourg)

Title:

Conformal transformation groups of Lorentzian manifolds

Abstract:

By the celebrated theorem of Ferrand and Obata from 1971, the conformal group of a closed Riemannian manifold  $M$  is compact, unless  $M$  is conformally equivalent to the round sphere. For pseudo-Riemannian manifolds, the analogous statement is false, by counterexamples due to C. Frances. For Lorentzian manifolds of dimension at least 3, however, it is conjectured that whenever the conformal group does not preserve any metric in the conformal class---in which case it is called essential---then the manifold is locally conformally flat. I will discuss recent work toward resolving this conjecture and toward classifying the groups  $G$  and the closed Lorentzian manifolds  $M$  such that  $G$  is an essential conformal group for  $M$ .

**Vor dem Vortrag (ab 16.30 Uhr) stehen im Foyer vor Hörsaal H4  
Kaffee und Tee bereit.**