**Geometric Foundations of Gravity 2025** 



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## Local Symmetries of Finsler Gravity and Its Dynamics

Finsler spacetimes are constructed such that they deliver a causal structure on the set of events, give a definition of observers as well as their measurements and encode the gravitational dynamics. In my master thesis "Local Symmetries of Finsler Gravity and its Dynamics"I focus on the notion of observers with the overall goal of determining the possible observer transformations. In a short talk I would like to summarise first results of my research: At the beginning I define the notion of local symmetry transformations of Finsler spacetimes and introduce one possible generator for such symmetries. I then analyse the algebraic structure of this candidate and have a look at its specific form in the case of  $(\alpha,\beta)$ -metrics. Furthermore, I examine the Lie derivatives of the fundamental building blocks of the geometry defined by the n-th partial derivatives of the Finsler-Lagrange function.

Author: ZYBUR, Lea

**Co-authors:** PFEIFER, Christian (University of Bremen, ZARM); Prof. GIULINI, Domenico (Leibniz University Hannover)

**Presenter:** ZYBUR, Lea

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