
BERN-FRIBOURG GRADUATE SEMINAR

a seminar for Master and PhD students

Thursday 27th February, 2025: 17:15 - 18:00

Room B7, Exakte Wissenschaften, Bern

LUCA NALON

University of Fribourg

Rigidity of Riemannian metrics in Lie groups

Abstract

We are interested in large-scale geometric properties of nilpotent Lie groups. In a space X , two metrics d and d' are *asymptotic* whether

$$\frac{d'(x, y)}{d(x, y)} \rightarrow 1, \quad \text{as } d(x, y) \rightarrow \infty.$$

When considering a family of metrics on a given space, it is then natural to ask if the asymptotic condition within this family implies a stronger property. We address this question for Riemannian metrics defined on a 2-step nilpotent Lie group G . Given two asymptotic Riemannian metrics d and d' , we prove that they are at bounded distance, meaning that

$$\sup_{p, q \in G} |d(p, q) - d'(p, q)| < \infty.$$

This seminar is part of an ongoing joint work with Enrico Le Donne, Sebastiano Nicolussi Golo, Seung-Yeon Ryoo, and Jeremy Tyson.