

A metric version of a theorem by Poincaré

Bas Lemmens

University of Kent, United Kingdom

Numerous theorems in several complex variables are instances of results in metric geometry. In this talk we shall see that a classic theorem due to Poincaré, which says that there is no biholomorphic map from the polydisc onto the (open) Euclidean ball in C^n if n is at least 2, is a case in point. In fact, it is known that there exists no surjective Kobayashi distance isometry between these two domains.

In the talk we shall see how Poincaré's theorem can be derived from a result for products of proper geodesic metric spaces. In fact, the main goal of the talk is to present a general criterion, in terms of certain asymptotic geometric properties of the individual metric spaces, that yields an obstruction for the existence of an isometric embedding between product metric spaces.

The key concepts from metric geometry involved are: the horofunction boundary of metric spaces, the Busemann points, and the detour distance. These concepts can, and have been, successfully used to analyse preserver problems involving isometries.

8 July 2020, 12:00 (BST)

You can join the event via this link:

<https://us02web.zoom.us/j/84226591177?pwd=RjVoMTh4ZlZGbTlrYU96U3R2V0laZz09>

More information about the webinar series can be found at the following homepages

<https://www.renyi.hu/~titkos/preserverwebinar.html>

<https://researchseminars.org/seminar/PreserverWebinar>

The slides and video recordings of all previous talks are available in this google drive folder:
drive.google.com/drive/folders/1FZJ6KP1b6dpLrbY2wJMoqj3hYK-IYomx?usp=sharing