

Institute for Geometry

## Geometric Colloquium

05.05.2022, 13:00 Uhr

Seminarraum 2 (NT04064), Kopernikusgasse 24, 8010 Graz

# Gromov-Hausdorff distances, Borsuk-Ulam theorems, and Vietoris-Rips complexes

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The Gromov-Hausdorff distance between two metric spaces is an important tool in geometry, but it is difficult to compute. For example, the Gromov-Hausdorff distance between unit spheres of different dimensions is unknown in nearly all cases. I will introduce recent work by Lim, Mémoli, and Smith that lower bounds the Gromov-Hausdorff distance between spheres using Borsuk-Ulam theorems. We improve these lower bounds by connecting this story to Vietoris-Rips complexes, providing new generalizations of the Borsuk-Ulam theorem. This is joint work in a polymath-style project with many people, most of whom are currently or formerly at Colorado State, Ohio State, Carnegie Mellon, or Freie Universität Berlin.

Univ.-Prof. Dr.-Ing. Michael Kerber