**Date:** February 9, 2021

**Speaker:** Jindrich Zapletal

**Title:** Krull dimension in set theory

**Abstract:** For each number n>0, let $G_n$ be the graph on $R^n$ connecting points of rational Euclidean distance. By results of Erdos and Komjath, in ZFC these graphs have countable chromatic number. I will show that it is consistent with ZF+DC that the chromatic number of $G_3$ is countable while that of $G_4$ is not. The technology exploits dimension features of the Noetherian topology of algebraic sets. It is applicable in a number of other consistency results.