Contribution ID: **19** Type: **Presentation (25 min)**

Average Hyperplane-Size in Complex-Representable Matroids

Wednesday, 21 August 2024 13:30 (25 minutes)

In 1941, Melchior proved that the average size of a line in a simple rank-3 real-representable matroid is less than three. A similar theorem for the complex-representable matroids was proved by Hirzebruch in 1983. In this talk, we discuss the problem of extending these results to flats of higher rank. We show that, in every simple rank-4 real-representable matroid which is not the direct sum of two lines, the average size of a plane is at most an absolute constant. We also present a generalization of this result to hyperplanes of arbitrary rank.

This talk is based on joint work with Rutger Campbell, Jim Geelen and Ben Lund.

Primary author: KROEKER, Matthew (University of Waterloo)

Presenter: KROEKER, Matthew (University of Waterloo)