I M B M istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

Combinatorial Methods for Minkowski Tensors of Polytopes

Büşra Sert

TU Dresden

Abstract

Intrinsic volumes of a convex body provide scalar data (volume, surface area, Euler characteristic etc.) about the geometry of a convex body intrinsically, i.e., the data doesn't depend on the ambient space. Minkowski tensors are the tensor valued generalization of intrinsic volumes. They give not only scalar data on the geometry of a convex body, but also information about its shape, orientation etc.. Moreover, generating functions for moments of the uniform distribution on convex bodies provide us a way to extract entries of Minkowski volume tensors.

In this talk, we first give necessary background on Minkowski tensors and their connection to moments on polytopes. Then, we describe Minkowski "surface tensors", and focus on some methods to obtain their entries in the case of simplicial polytopes.

This is a joint work with Niklas Livchitz and Amy Wiebe.

Date : Wednesday, February 24, 2021
Time: 10.00 EST 18.00 TSİ
Details : `http://sntp.ca/ucgen/`