A discrete gradient-method approach to the Fermat-Torricelli problem

Margarita Spirova
TU Chemnitz

The well known Fermat-Torricelli problem refers to the unique point having minimal distance sum to a given finite set of points in d-dimensional space. We give a discrete geometric (differential-free) proof of the theorem characterizing the solution of this problem. Using this discrete approach, we extend the Fermat-Torricelli problem to the case that the given points are replaced by affine flats of various dimensions.

The talk is based on joint work with Yaakov S. Kupitz (Jerusalem) and Horst Martini (Chemnitz).