Matematisk Studenterkollokvium

Alvin Šipraga

Convex sets in Euclidean space

We start by introducing some of the basic notions of convex analysis with special attention to $\mathbb{R}^n$, and motivate the discussion with a special case of Jung's theorem. Later we shall prove one of the classic results in convex analysis — Helly's theorem — for (possibly uncountable) families of compact, convex sets in $\mathbb{R}^n$. Finally, we shall prove Jung's theorem in full generality with an elegant application of Helly's theorem.