

Proof of Schläfli formula using Integral Geometry

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Abstract: Let $\{P_t\}$ be a family of compact convex polyhedra of dimension $n \geq 2$ in Euclidean, hyperbolic or spherical n -dimensional space. The Schläfli formula, discovered in 1850's by Schläfli in case of spherical simplexes and extended to the hyperbolic case by Sforza in 1907, relates the variation of volume of P_t to the volumes of its $(n-2)$ -faces and dihedral angles. References to more modern proofs of Schläfli formula can be found in Milnor's note "The Schläfli differential equality". In this talk we will give a different (short) proof of Schläfli formula using Integral Geometry.