Volume estimates for ideal hyperbolic polyhedra

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Abstract. In this talk, volume estimates for two families of ideal hyperbolic polyhedra will be given in terms of the combinatorics of their 2-skeleta. For ideal polyhedra with all dihedral angles equal to $\pi/2$, totally geodesic sub-orbifolds of the corresponding polyhedral orbifold are exploited to obtain a lower bound on the volume of the polyhedron. For the case of ideal polyhedra with all angles $\pi/3$, the lower bound is obtained by packing horoballs about the vertices. In both cases, asymptotically sharp upper bounds on volume are obtained by using a triangulation of the polyhedra.