1047-05-354 **Penny Haxell***, Combinatorics and Optimization, University of Waterloo, Waterloo, ON N2L 3G1, Canada, and **Subir Ghosh**. *Packing and covering tetrahedra.*

For a graph G, we denote by $\nu(G)$ the maximum size of a set of edge-disjoint triangles in G. The parameter $\tau(G)$ is the minimum size of an edge cover of the triangles of G, that is, a set C of edges such that $G-C$ is triangle-free. An old unsolved conjecture of Tuza states that $\tau(G) \leq 2\nu(G)$ for every graph G. As proved by Tuza, the conjecture is true (and best possible) for planar graphs. We consider geometric generalisations of this problem, in particular we prove that the result of Tuza can be generalised to a best possible bound for d-uniform hypergraphs as follows. Let H be a d-uniform hypergraph whose associated simplicial complex has a geometric realisation in $\mathbf{R}^d$. Then $\tau(H) \leq (\lceil d/2 \rceil + 1)\nu(H)$. Here $\nu(H)$ is the maximum size of a set of edge-disjoint copies of the complete hypergraph K_{d+1}^d in H, and $\tau(H)$ is the minimum size of an edge cover of the K_{d+1}^d's in H. (Received February 02, 2009)