Let G be a group. A *norm* on G is a function ν from G to the set of non-negative real numbers satisfying some natural conditions. For example, if S is a generating set for G then we can define $\nu_S(g)$ for $g \in G$ to be the distance of g from 1 in the Cayley graph of G with respect to S; this gives a norm on G which we call the *word norm* associated to S.

We say that G is *finitely conjugation generated* if G has a generating set S such that S is a finite union of conjugacy classes. In this case, ν_S is conjugation-invariant and every conjugation-invariant norm on G is bounded (as a real-valued function). I will discuss conjugation-invariant norms and their properties for several different types of group, including compact Lie groups, algebraic groups, arithmetic groups, lattices and automorphism groups of symplectic manifolds.

This is joint work with Jarek Kedra and Assaf Libman.