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Ara S. Basmajian*, 83 Hillcrest ave., Manhasset, NY 11030. *Involutions and the word length of the Mobius group.*

We consider the word length of $\text{Möb}^+(n)$, the orientation preserving isometries of hyperbolic n -space, with respect to various generating sets. When the generating set consists of orientation preserving involutions, in joint work with Bernard Maskit, we show that depending on the congruence class of $n \pmod{4}$, $\text{Möb}^+(n)$ has word length 2 or 3. As a consequence, $\text{Möb}^+(n)$ has commutator length one.

On the other hand, if the generating set consists of a single orientation preserving k -involution conjugacy class, in joint work with Karan Puri, we show that the word length of $\text{Möb}^+(n)$ is comparable to n . Here a k -involution is an involution with a fixed point set of codimension k . (Received August 27, 2010)