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The Mahler measure of an n -variable polynomial P is the integral of $\log |P|$ over the n -dimensional unit torus T^n with the Haar measure. For one-variable polynomials, this is a natural quantity that appears in different problems such as Lehmer's question.

We consider a generalization of the Mahler measure to elements in group rings, in terms of the Lueck-Fuglede-Kadison determinant. We study the variation of the Mahler measure when the base group changes. In particular, we discuss the Mahler measure over infinite groups as limit of Mahler measures over finite groups. (Received January 25, 2008)