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M.J. Mossinghoff, C.G. Pinner and J.D. Vaaler have shown that many polynomials with small Mahler measure are obtained by perturbing the middle coefficient of a product of cyclotomic polynomials. By analogy, if a periodic surface automorphism is perturbed in an suitable way, then the product of the moduli of its homology eigenvalues remains close to 1. This product is the Mahler measure of the characteristic polynomial of the induced map on first homology.

Lehmer's question is equivalent to one about generalized growth rates of Lefschetz numbers of iterated pseudo-Anosov surface automorphisms. We discuss this and related results. (Received September 27, 2005)