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Jeremy A Rouse* (rouse@math.wisc.edu), University of Wisconsin Math Dept., 480 Lincoln Drive, Madison, WI 53703. *The Atkin-Serre Conjecture.*

Let $H(z)$ be a newform of weight $k \geq 4$ without complex multiplication on $\Gamma_0(N)$ with Fourier expansion

$$H(z) = \sum_{n=1}^{\infty} a(n)q^n, \quad q = e^{2\pi iz}.$$

A conjecture of Atkin and Serre states that for sufficiently large primes p ,

$$|a(p)| \gg p^{\frac{k-1}{2}-1-\epsilon}$$

for all $\epsilon > 0$. Assuming the GRH for symmetric power L -functions associated to H , we prove that

$$|a(p)| \geq p^{\frac{k-1}{2}-\epsilon},$$

for all but $O(x^{1-\epsilon}/\log x)$ primes $p \leq x$, provided $\epsilon \leq 1/8$. (Received September 06, 2006)