# Exceptional congruences for the coefficients of certain eta-product newforms

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**Abstract.** Let $F(z) = \sum_{n=1}^{\infty} a(n)q^n$ denote the unique weight 16 cuspidal eigenform on $\mathrm{SL}_2(\mathbb{Z})$. In the early 1970's Serre and Swinnerton-Dyer conjectured that

$$a(p)^2 p^{-15} \equiv 0, 1, 2, 4 \pmod{59}$$

when $p \neq 59$ is a prime. This was proved in 1983 by Haberland. Here, we describe a general computational method for proving congruences for the coefficients of eigenforms arising from odd octahedral complex 2-dimensional Galois representations, of which this congruence is the prototype.