

$$N = 203 = 7 \cdot 29$$

By the Ibukiyama-Kitayama dimension formula,
 $\dim(S_4(K(203))) = 84$

By the Skoruppa-Zagier dimension formula and Jacobi restriction,
the lift dimension of $S_4(K(203))^+$ is 36
the nonlift dimension of $S_4(K(203))^+$ is heuristically 37
 $\dim(S_4(K(203))^+)$ thus is heuristically 73
 $\dim(S_4(K(203))^-)$ is heuristically 11

The heuristic dimensions are correct by the spanning results to follow

$\dim(J_{\{2,203\}}^{\{\text{cusp}\}}) = 4$ (Skoruppa-Zagier), so need to span to within 3 dimensions

$q = 3$ for TraceDown

After TD($\text{Grit}(J_{\{4,609\}}^{\{\text{cusp}\}})$) and $(\text{Grit}(J_{\{2,203\}}^{\{\text{cusp}\}}))^2$,
spanned rank in $S_4(K(203))^+$ is 73
spanned rank in $S_4(K(203))^-$ is 0

After Borcherds products,
spanned rank in $S_4(K(203))^-$ is 11

Final spanned rank in $S_4(K(203))^+$ is 73

Final spanned rank in $S_4(K(203))^-$ is 11

$S_2(K(203))$ is determined by Jacobi restriction and the $H4Ndd(2,+)$ test
($H_4(203,2,2)^+ = 0$)

So $S_2(K(203)) = \text{Grit}(J_{\{2,203\}}^{\{\text{cusp}\}})$ (dimension 4)