

$$N = 298 = 2 \cdot 149$$

By the Ibukiyama-Kitayama dimension formula,
 $\dim(S_4(K(298))) = 223$

By the Skoruppa-Zagier dimension formula and Jacobi restriction,
the lift dimension of $S_4(K(298))^+$ is 57
the nonlift dimension of $S_4(K(298))^+$ is heuristically 128
 $\dim(S_4(K(298))^+)$ thus is heuristically 185
 $\dim(S_4(K(298))^-)$ is heuristically 38

$\dim(J_{\{2,298\}}^{\{\text{cusp}\}}) = 8$ (Skoruppa-Zagier), so need to span to within 7 dimensions

$q = 5$ for TraceDown

After TD($\text{Grit}(J_{\{4,1490\}}^{\{\text{cusp}\}})$) and $(\text{Grit}(J_{\{2,298\}}^{\{\text{cusp}\}}))^2$,
spanned rank in $S_4(K(298))^+$ is 182
spanned rank in $S_4(K(298))^-$ is 0

Hecke operators applied: $\{\{2, 2\}, \{2, 2\}, \{2, 1\}\}$

After Hecke spreading,
spanned rank in $S_4(K(298))^-$ is 24

After Borcherds products,
spanned rank in $S_4(K(298))^-$ is 33

Final spanned rank in $S_4(K(298))^+$ is 182

Final spanned rank in $S_4(K(298))^-$ is 33

$S_2(K(298))$ is determined by Jacobi restriction and the $H_4Ndl(4)$ test
($\dim(H_4(298,4,1)) \leq 8$ and this is less than $\dim(J_{\{2,298\}}^{\{\text{cusp}\}})+1 = 9$)

So $S_2(K(298)) = \text{Grit}(J_{\{2,298\}}^{\{\text{cusp}\}})$ (dimension 8)