

$$N = 141 = 3 \cdot 47$$

By the Ibukiyama-Kitayama dimension formula,  
 $\dim(S_4(K(141))) = 49$

By the Skoruppa-Zagier dimension formula and Jacobi restriction,  
the lift dimension of  $S_4(K(141))^+$  is 24  
the nonlift dimension of  $S_4(K(141))^+$  is heuristically 23  
 $\dim(S_4(K(141))^+)$  thus is heuristically 47  
 $\dim(S_4(K(141))^-)$  is heuristically 2

The heuristic dimensions are correct by the spanning results to follow

$\dim(J_{\{2,141\}}^{\{\text{cusp}\}}) = 2$  (Skoruppa-Zagier), so need to span to within 1 dimension

$q = 5$  for TraceDown

After TD( $\text{Grit}(J_{\{4,705\}}^{\{\text{cusp}\}})$ ) and  $(\text{Grit}(J_{\{2,141\}}^{\{\text{cusp}\}}))^2$ ,  
spanned rank in  $S_4(K(141))^+$  is 47  
spanned rank in  $S_4(K(141))^-$  is 0

Hecke operators applied:  $\{\{3, 2\}\}$

After Hecke spreading,  
spanned rank in  $S_4(K(141))^-$  is 1

After Borcherds products,  
spanned rank in  $S_4(K(141))^-$  is 2

Final spanned rank in  $S_4(K(141))^+$  is 47

Final spanned rank in  $S_4(K(141))^-$  is 2

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 $S_2(K(141))$  is determined by Jacobi restriction and the  $H4Ndd(2,+)$  test  
( $H_4(141,2,2)^+ = 0$ )

So  $S_2(K(141)) = \text{Grit}(J_{\{2,141\}}^{\{\text{cusp}\}})$  (dimension 2)