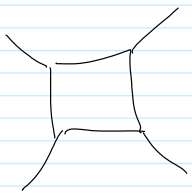

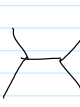
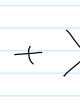

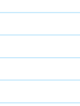
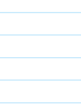




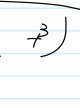


classical (Sq)  =  +  +  $\alpha$  (  +  +  +  )

$A_1$   
 $A_2$   
 $D_4$   
 $F_4, 7, 8$   
 $G_2$

(IHX)  +  +  = 0

$(qEx)^0$   +  $\alpha$  (  +  ) =  $\alpha$  (  +  $\beta$   )

$\partial' = v^{12} U$

closed  
 Conj 1 Diags / IHX, Sq  $\approx \mathbb{Q}[x^{\pm}]$

Conj 2 4-rod Diags / IHX, Sq is  $\leq 5$ -dim'l over  $\mathbb{Q}[x^{\pm}]$

Conj 2  $\Rightarrow (qEx)$



Thm If you have an input of KTT w/

- $Q = d$
- $\partial' = v^{12} U$
- $\partial' = v^6 Y$
- $Q = 0$
- 4-box space  $\leq 5$  dim'l
- $v^{12} \neq 1$

Then  $(qEx)$  holds