

## Rank $r$ DT theory from rank 1

Fix a Calabi-Yau 3-fold  $X$  satisfying the Bogomolov-Gieseker conjecture of Bayer-Macri-Toda, such as the quintic 3-fold. After a brief introduction of weak Bridgeland stability conditions, I will describe work with Richard Thomas which expresses Joyce's generalised DT invariants counting Gieseker semistable sheaves of any rank  $r$  on  $X$  in terms of those counting sheaves of rank 1. By the MNOP conjecture, the latter are determined by the Gromov-Witten invariants of  $X$ . Finally, I will show our result gives an explicit formula for rank  $r=0$  or 2 when  $X$  is of Picard rank one.

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