8-pt BDS-like amplitudes

- analyze the space of BDS-like ansatze (done at symbol-level)
- check if cluster adjacency breaks down in one-to-one correspondence with broken Steinmann relations
- get a cluster-polylogarithmic representation of $R_8^{(2)}$ at function level
- see if we can put the conversion from $R_8^{(2)}$ to the various BDS-like anstaze in a cluster-polylog form—if not, find a cluster-polylog form for these amplitudes as well
- reach goal: go to higher points, or find significant improvements to the published algorithm (especially taking advantage of Steinmann/cluster adjacency)

Cobracket-level subalgebra constructibility

- look for more subalgebra-constructible representations of $B_2 \wedge B_2$ or $B_3 \otimes C^*$ at 6 and 7 points
- find a principle for selecting only a 'good' set of of subalgebras out of $\mathrm{Gr}(4,8)$, and find a subalgebra-constructible representation in 8-point kinematics

Symbol-level subalgebra constructibility

- comprehensive analysis of cluster-algebraic symbol representations of amplitudes
- in what ways is this a useful/productive way to think about the function space relevant for n-point planar $\mathcal{N}=4$ amplitudes?
- are physical functions always in the non-subalgebra-constructible part? Is there a way to benefit from this computationally?
- lots and lots and lots of tables

Reach goal: a similar type of analysis to the last two papers, but at three loops

- In particular, in 1512.07910 Tom and Mark point out that $B_3 \wedge B_3$ of $R_6^{(3)}$ isn't expressible in terms of $\mathcal{X}$-coordinates (probably you make this point in one of your papers as well). Any bets on whether or not the BDS-like normalized amplitude can be expressed this way ;)?

Cluster automorphisms

- Write note on cluster automorphisms, D_5 function, and how D_4 and A_4 fail to have relevant cluster functions.
- Understand more deeply what sign choices to take for cluster automorphisms.
- Fix remaining free parameters in D_5 function.