Discussion on NNLO+PS

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- Some general information:
  - After ~1h we'll split into 3 discussion rooms (additional links on Slack)
    - 1. NNLO+PS
    - 2. PS accuracy (continued) - discussion on higher order kernels
    - 3. Non perturbative & MPI effects

- What do we want the NNLO+PS to achieve ?
  - Fully differential NNLO for observables differential in Born phase space (unitarity of PS evolution for inclusive observables ?)
    - e.g. NNLOPS ≠ NNLO sometimes for total XS (due to scale setting + subheading terms) and rapidity distribution of a colour singlet (scales and mappings/recoil). Is this an acceptable feature ?
    - e.g. some corners of Born phase space can be more affected by PS radiation than others (large vs. central absolute rapidities). How different methods treat the matching in these regions ?

- **What do we want the NNLO+PS to achieve ?**
  - Preserve the accuracy of PS simulation (can current methods be adopted for a NLL PS ?)
    - What aspects of the matching are relevant for PS accuracy (mappings, merging of multiplicities, ordering variables, …) ?

- Scale settings in singular & non-singular (regular) terms of the MEs
  - Different methods rely on different choices:
    - Any advantage/disadvantage ?
- NNLO subtraction (or slicing) in different methods. Advantages and disadvantages ?

- Treatment of NP region and interplay with hadronisation models ?
  - Should the PS be re-tuned ? Any extra NP parameters in the matching ?
- What to vary for a reliable uncertainty estimate ?