9th International Workshop on MPI@LHC
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Summary of PWG-VI
Interactions with Nuclei

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- ALICE: 3 talks
  - Spectra in pp,pA and AA,
  - Femtoscopy (baryons)
  - Open Heavy Flavour
- CMS: 1 talk on Ultraperipheral Collisions
- LHCb: 1 talk on Jpsi production in pPb and preliminaries in PbPb(X)
- PHENIX: 2 talks
  - System size dependence of high pT hadron production
  - azimuthal correlations In small systems
- STAR: 2 talks
  - v_n and correlations of hadrons in AuAu
  - Freezeout dynamics
- Theory: 2 talks
  - Colour Fluctuations
  - Four lepton production via single or double scattering in UPC

- Ultraperipheral Collisions (UPCs)
  - Photoproduction of upsilon: disfavours LO pQCD
  - Coherent Jpsi production: supports gluon shadowing
  - Four lepton production primarily via double scattering

- Spectra, Freezeout Dynamics
  - Spectra harder for more massive particles, for large multiplicity events => large β_T ; large β_T for pp than pA at similar multiplicities
  - BES at RHIC: T_{ch} increases with colliding energy, T_{kin} decreases with colliding energy, Increased difference between T_{ch} and T_{kin} => increased interactions.

- Flow coefficients v_n and their correlations
  - v_2 for open charm comparable to v_2 of light hadrons
  - Difference between v_2 for mesons and baryons increases with colliding energy, indicating onset of partonic flow
  - Correlations between v_2 and v_4 larger than in geometry (coordinate) space => effect of medium (or geometry space affected by MPI?)

- Heavy Flavour
  - D-meson shows an increase faster than linear with charged particle multiplicity. This was also observed for Jpsi, and MPIs offer one of the possible explanations.

- Ridge
  - In dAu collisions for $\Delta\eta > 6.2$ --- really long range correlations

- Nuclear Suppression Effects
  - Estimate medium effect -- Ratio of yield in AA (pA) to scaled yield in pp
  - R_{pA} Generally 1 => no initial state effects
    - Many instances, including for electrons from heavy flavour !
  - $R_{pA} < 1$ for neutral pions questions the idea of initial state effects
  - R_{pA} for many species, including J/Ψ -- forward and backward side

- Colour Fluctuations
  - Jets at high rapidities, quark-gluon structure as fn of x => affects σ_{NN}
  - Present in high energy nucleon, photon collisions, affects very central AA collisions
  - New strategies for observing effects (in DPS and others)

Need unambiguous signals to probe MPIs in AA collisions !