Diffraction (sar*t*re) Planning

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Key players:

Sartre: Tobias Toll, Thomas Ullrich

JLAB: Guohui Wei, Vasiliy Morozov

Also: Liang Zheng

One page diffraction summary

- Not much more for Guohui to do until there is a new tableGenerator (new sar*t*re release?)
- Then there is a lot to do @ JLAB.
- Meanwhile, there are some questions
  - Most urgent: when will tableGenerator be ready?
  - Tobias & Thomas meet next week if not today...
- Also waiting for BeAGLE update (~2 weeks?)
  - Good news: The small kinematic bug was found.

Basic sar*t*re steps (once ready)

- Job 1: Calibrate code (hard - needs farm):
  - Use tableGenerator & lambdaGenerator to make cross-section tables and lambda (correction) tables for ep (quick & easy) for J/ψ & ϕ.
  - Use Thomas's script to confirm ep matches HERA.
  - Then make tables for ePb (and eCa?)
- Job 2: Simulate events (& then also GEMC?)
  - Use sartreMain to generate sartre .root files and/or GEMC/eicroot .txt files (needs Liang-modified sartreMain – where? - should release w/ sartre).

Questions on new sar*t*re (v249+)

- "Example" tableGenerator needs updating to handle new parameterization & DGLAP
  - What about lambdaGenerator?
  - What about parts of sar*t*re that read the tables?
  - Are we going to C & I tables rather than C & T?
    - Recall Total = Coherent + Incoherent:
      C & T are calculated. I is "physics" & is smoother than T.
- We end up with two sartre "trees": trunk from svn checkout and sartre from cmake.
  - Should we keep both of them?

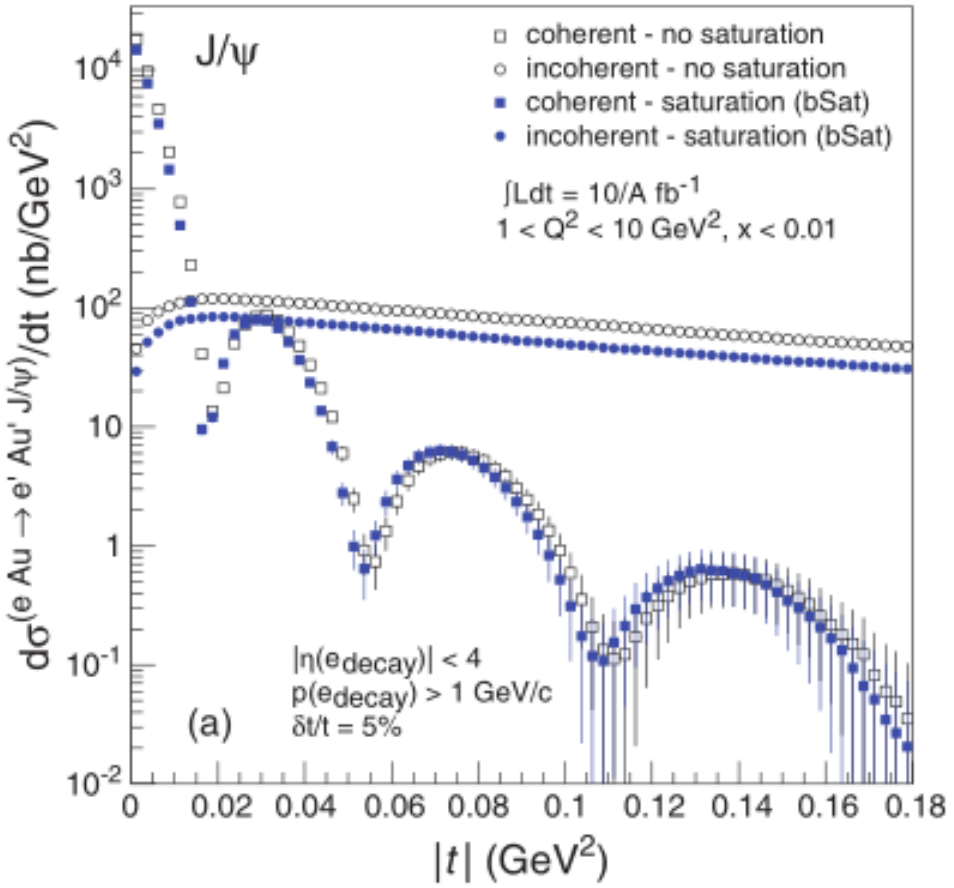
Comments on new sar*t*re (v249+)

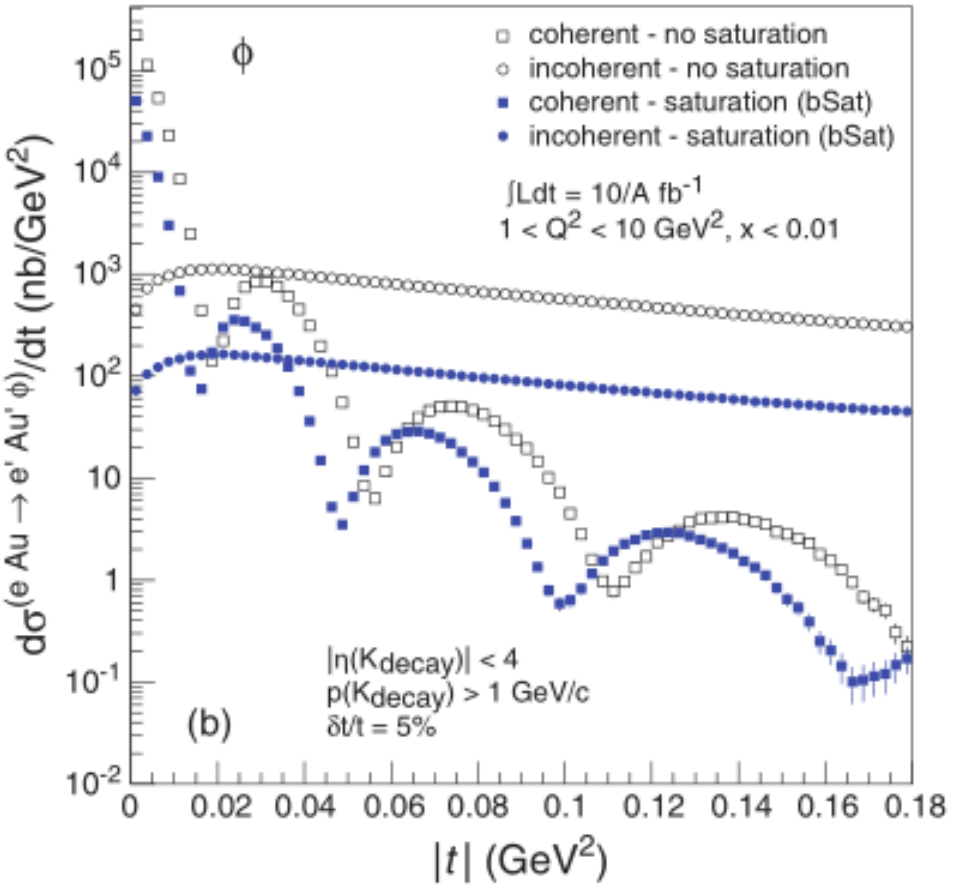
- We should "line up" the grid points on the total/incoherent tables to match the coherent.
  - I'll make a concrete suggestion on this soon.
- Next release of sar*t*re @ JLAB should go into .../ldgeom/PACKAGES not /ldgeom/gwei.
- Liang's sartreMain should be released with sartre if it still works with the new sar*t*re.
  - New feature: outputs (optionally?) an eicroot/GEMC text file as well as (optionally?) a sartre root file.

Final comment on sar*t*re

- We do have a fallback if all of this takes too long or gets too complicated.
- The already-installed v205 version has tables which are not ideal, but which we COULD use if we need to.
  - We would need to copy/modify the Au tables to go into the Pb directory like we modified Vasiliy's Pb patch table to go into the Au directory...

Reminder: physics goal





Reminder: physics goal

- Sar*t*re:
  - Yield/Acceptance for coherent $J/\psi \rightarrow ee$ (or $\mu\mu$?) & $\phi \rightarrow KK$ @ JLEIC energies.
    - Note: T,U acceptance cuts were p_e, p_K>1 GeV/c & $2^o<\theta<178^o$ ($|\eta|<4$). Advantage to relax these?
  - Ratio of coherent/incoherent σ vs. t for ePb (eCa)
- BeAGLE
  - Incoherent J/ψ & ϕ samples. Can we veto them? Do we need to detect A'=A-1 in order to veto them?