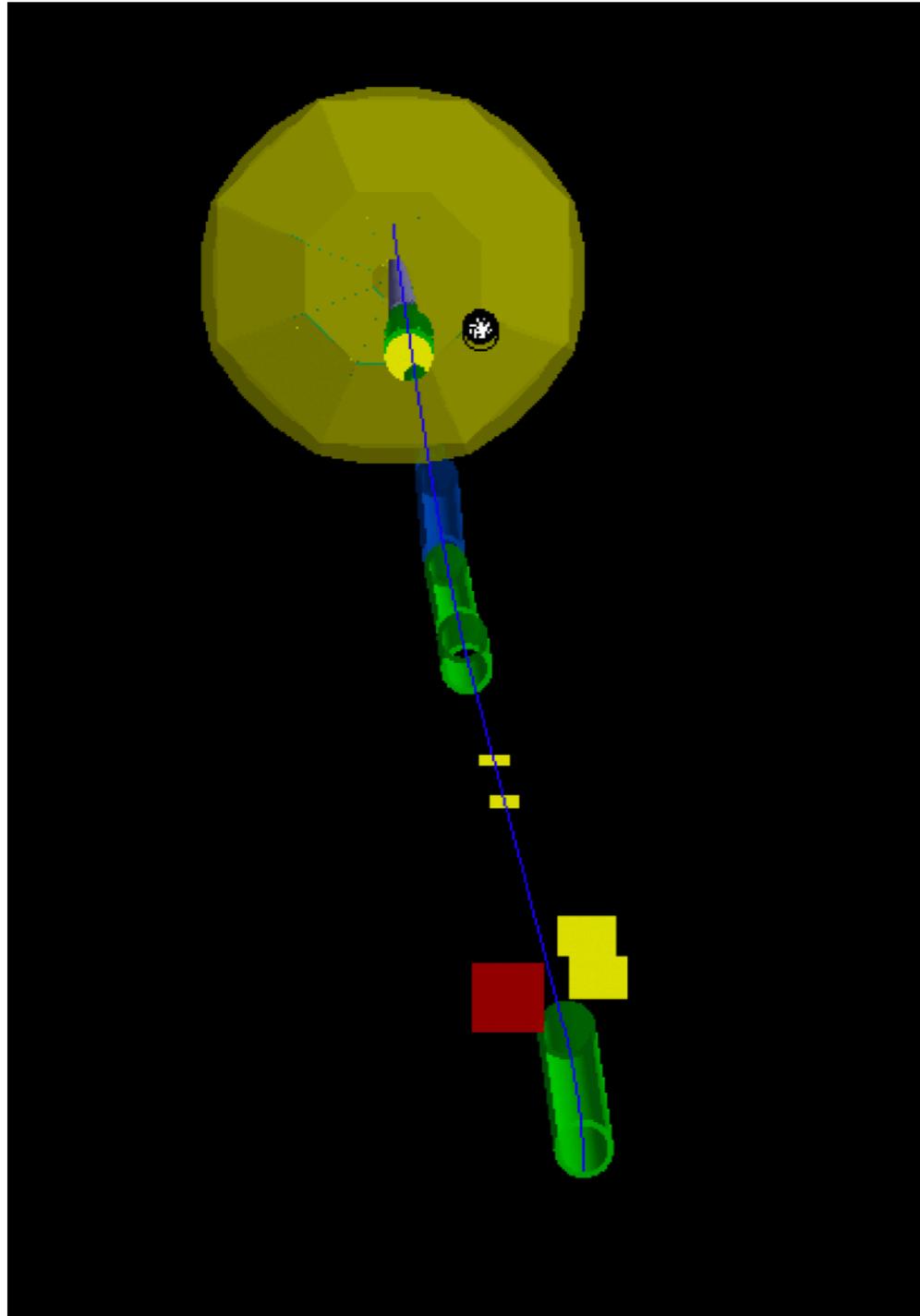


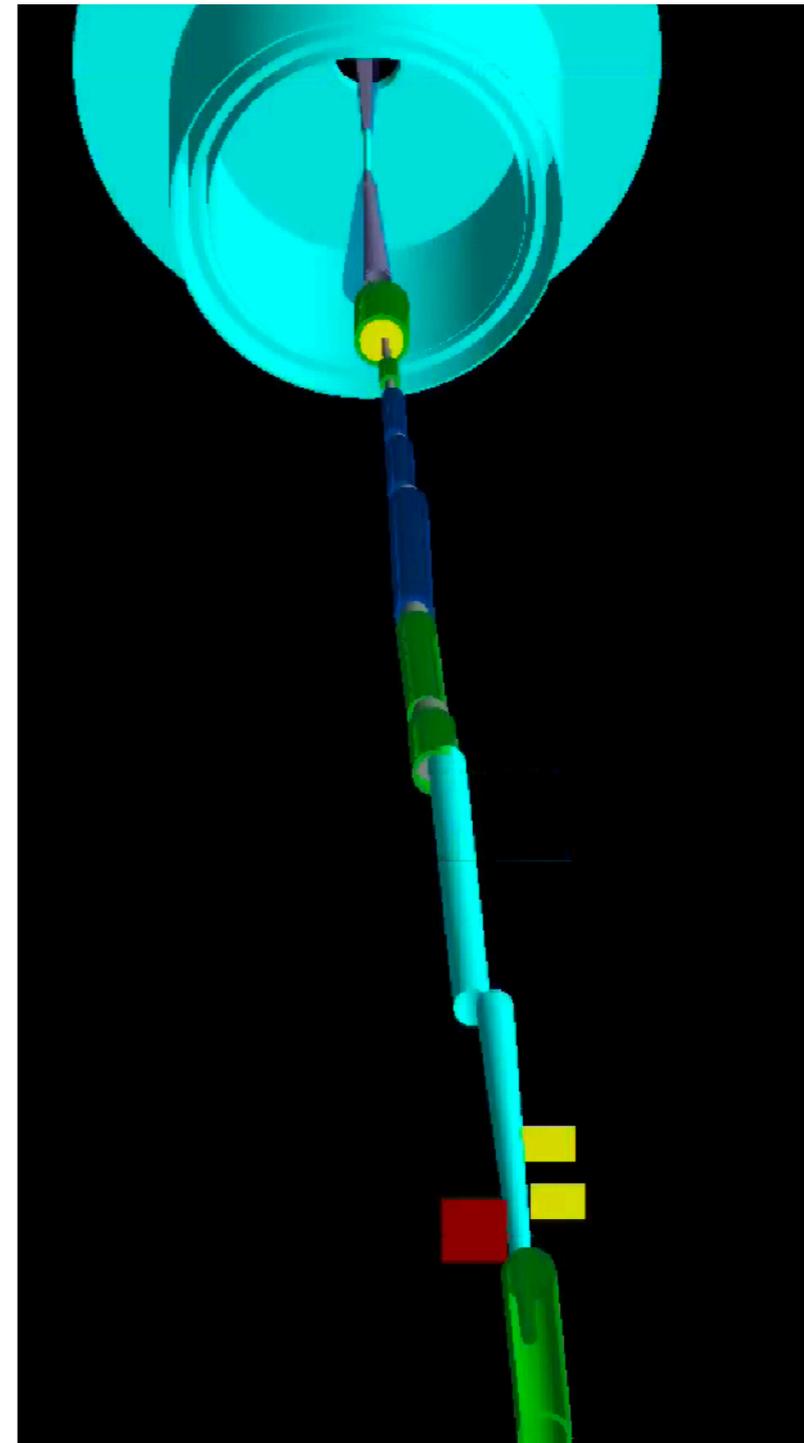
# Exclusive J/psi progress

Peter Steinberg / Diffractive & tagging weekly meeting / 10 June 2021

# Fun with the beam line



$^{197}\text{Au}$  110 GeV gets through beamline magnets



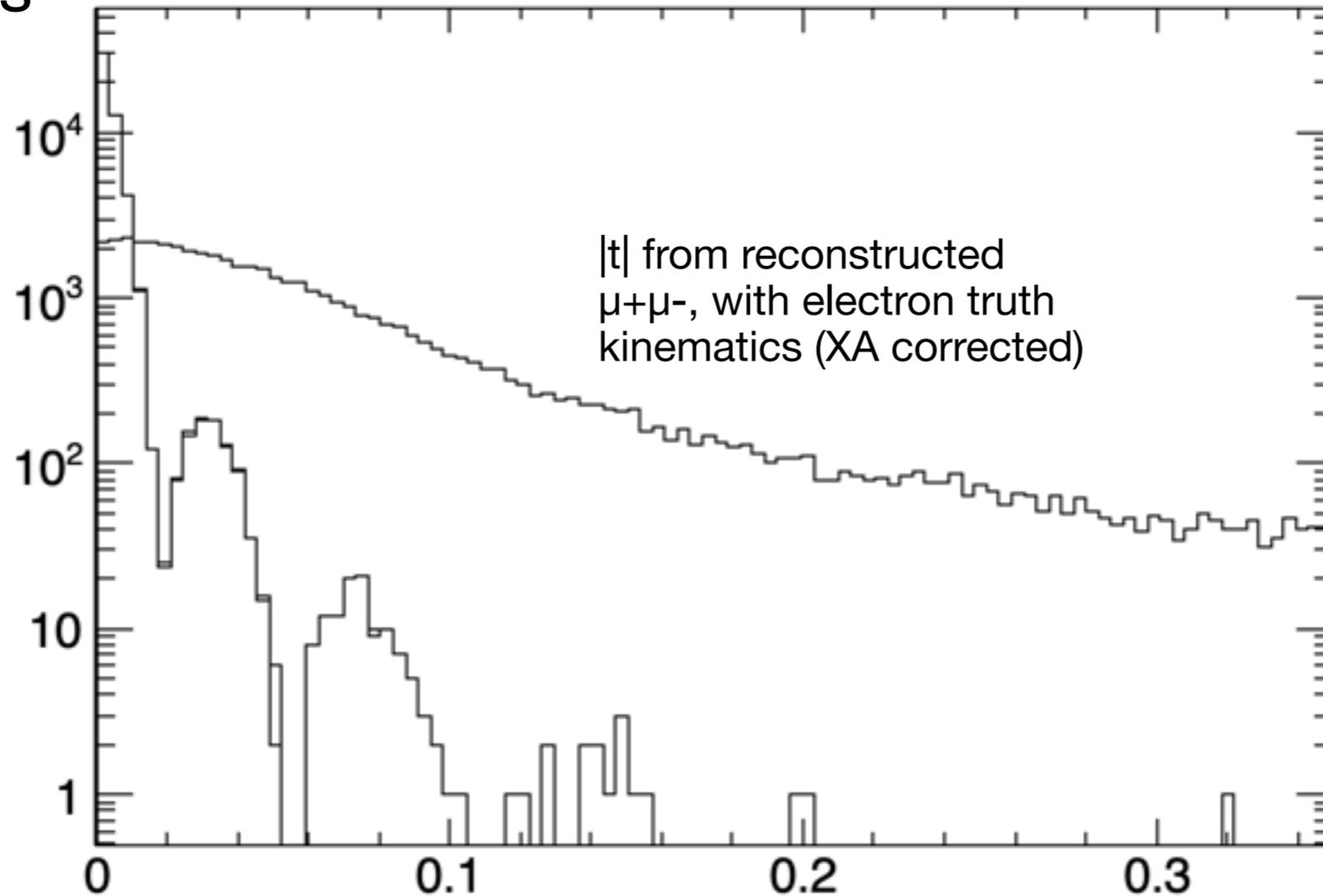
beam pipe is not correctly implemented (required special hack instructions from Jin!)

# |t| reconstruction

- **Trying to assess capabilities of existing ECCE setup in Fun4all**
- **Using sartre 1.33, filtering on coherent production**
  - 1.34 is available
- **A few (serious) issues**
  - The remnant nucleus has energy  $E/A$  and momentum  $p/A$ , i.e. completely useless for G4
    - *Will fix this in the \*output\* of 1.34 - sartre authors don't see this as a problem(!?)*
  - Good news: HEPMC reader (so EIC-smear input) now sees ions and transports them
  - The crossing angle implementation has interesting impact on t reconstruction (after extensive discussions w/ Jin)
    - *NB crossing angle is a rotation (preserving energies) and a boost (\*increasing\* energies slightly)*
    - *The energy of the incoming electron (invisible in output) is  $E_e/\cos(.0125)$  - \*very\* small (<1%%) shift but observable in t from e+A!*
    - *For the moment I have have disabled beam divergence and will introduce it slowly to assess impact*
  - The current tracker is not sufficient for exclusive J/psi in e+A
    - *Using  $\mu\mu$  decay for now, to avoid radiative effects*

# First look $e+Au \rightarrow e'+Au+(J/\psi \rightarrow \mu\mu)$

Counts



$|t|$  from HEPMC compared to what is simulated, after accounting for crossing angle

$|t|$  ( $\text{GeV}^2$ )

Not improved using 3T: eagerly awaiting all Si tracker + ACTs, etc.  
Next steps is to smear truth by nominal resolution to check consistency