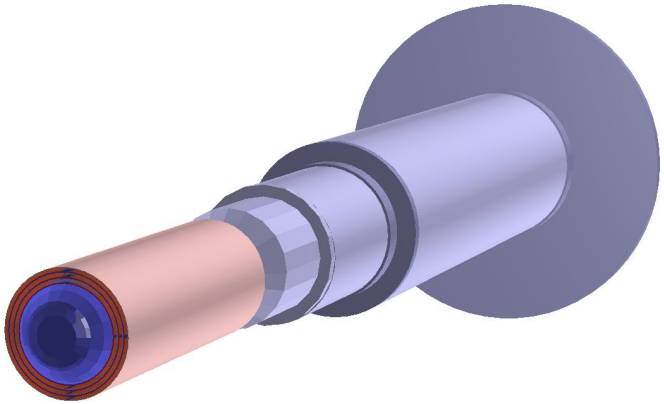
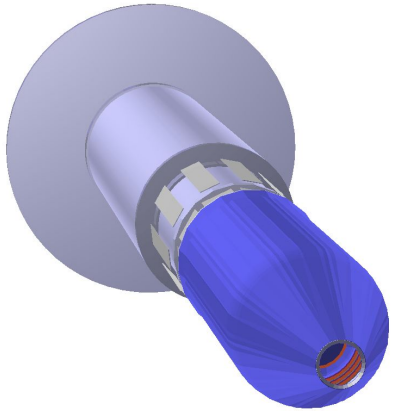
Physics motivations for a GlueX cylindrical μRWELL

3 μRWELL modules with 4 mm drift gap each, from target center, cover polar angles between 14.42° and 165.579°

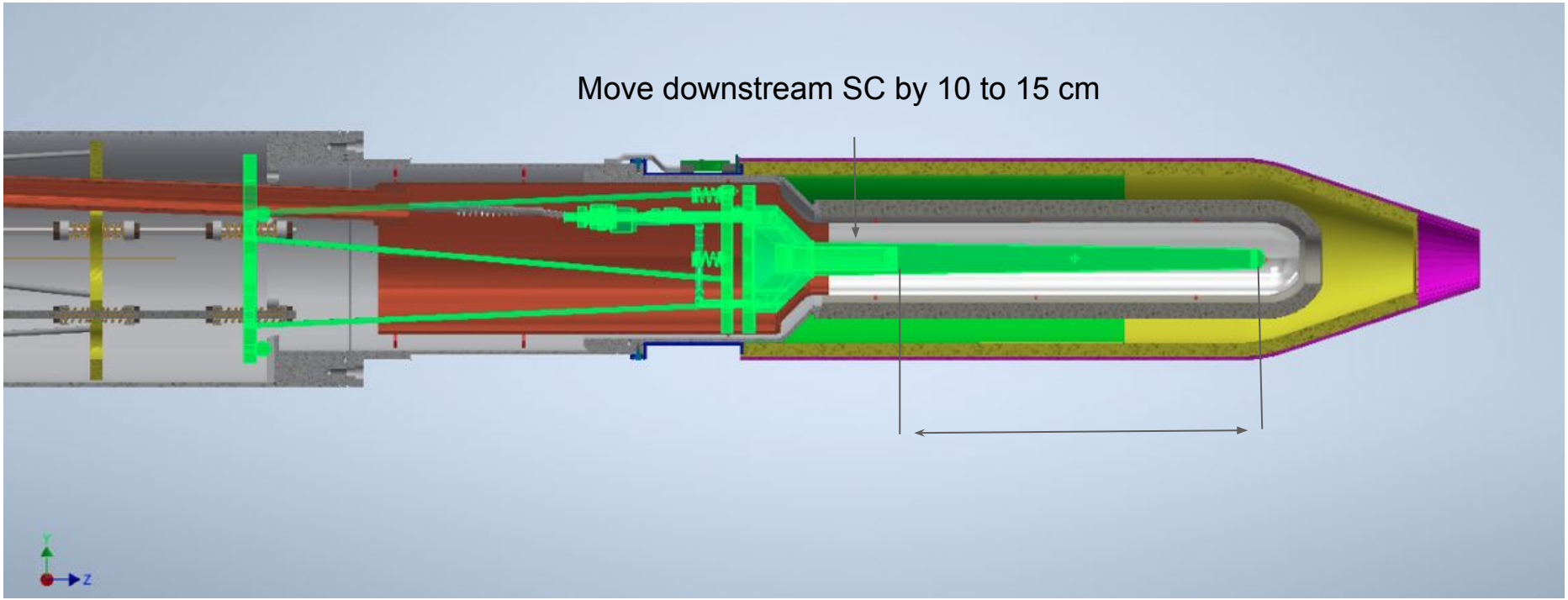




- ❖ Laying on the target vacuum chamber
- ❖ In the free space between target vacuum chamber and Start Counter

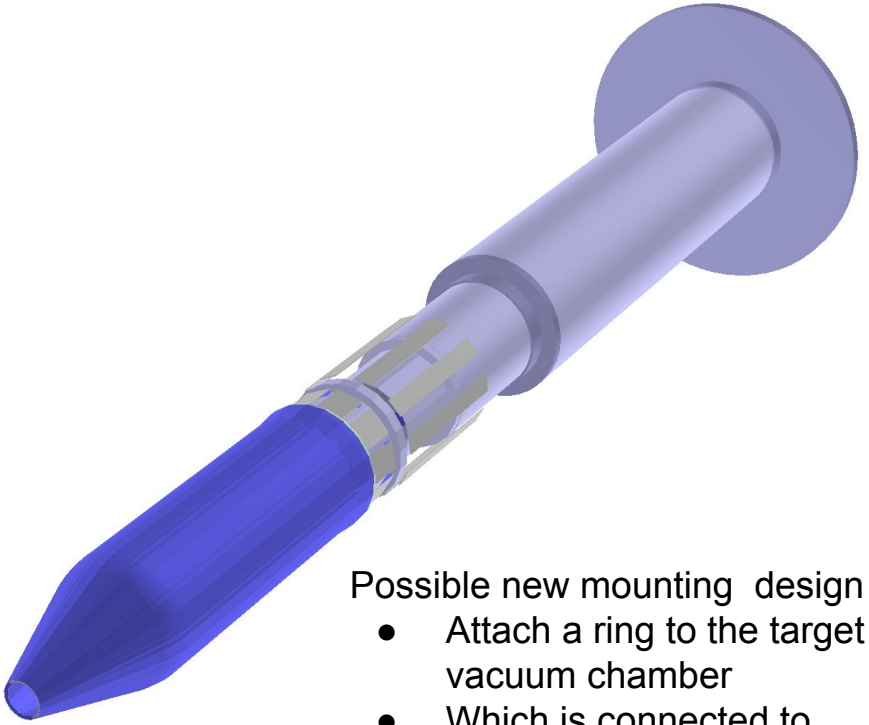
- ➔ GlueX: improve cascade processes resolution and detection efficiencies
- ➔ JEF: improve mass resolution of hypothetical BSM particles and allow search for BSM particles with displaced vertices
- ➔ KLF: improve kaon tracking and measurements of the vertex production

Target vacuum chamber & SC



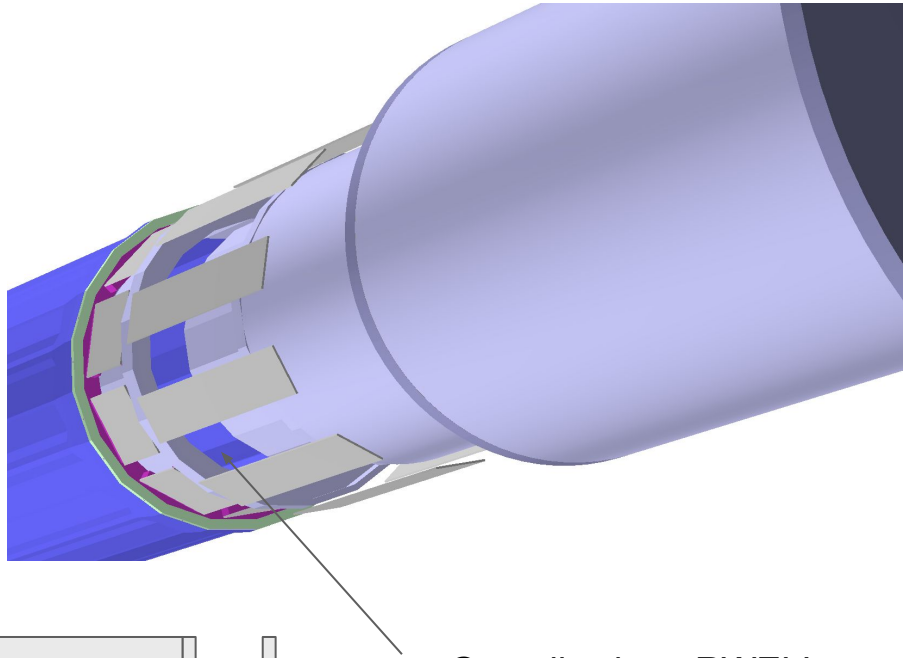
- Target vacuum chamber cannot be changed
- To make room for uRWELL cablings, we will have to re-design how the SC is mounted

Geometry implementation - new SC configuration



Possible new mounting design

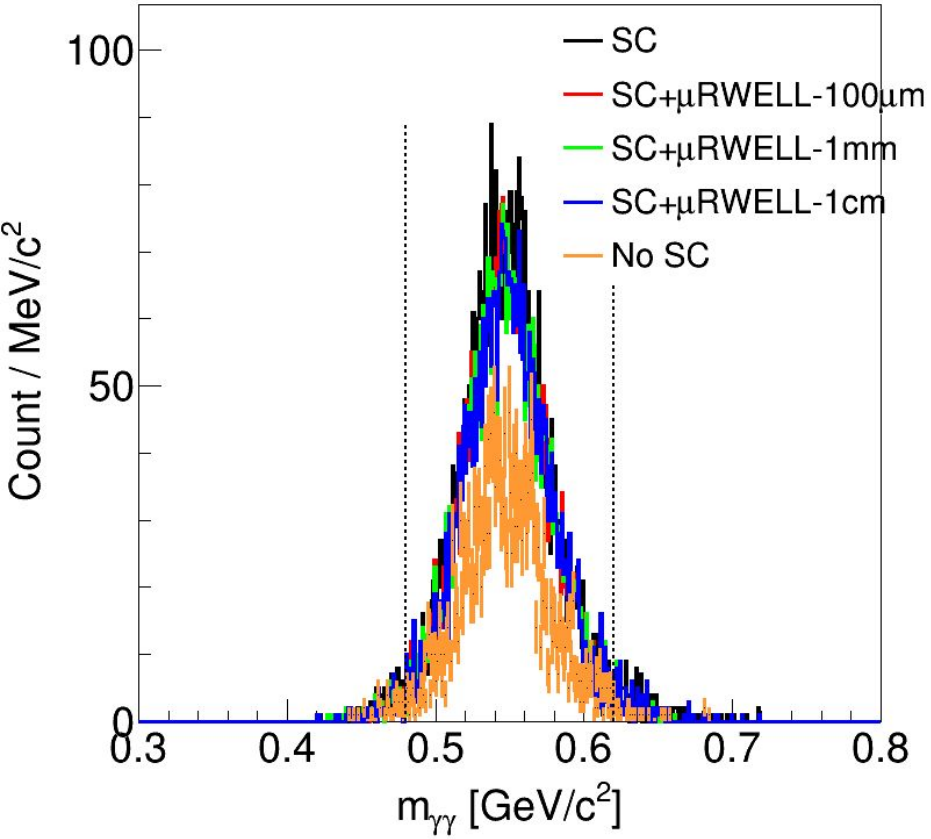
- Attach a ring to the target vacuum chamber
- Which is connected to SC via rods

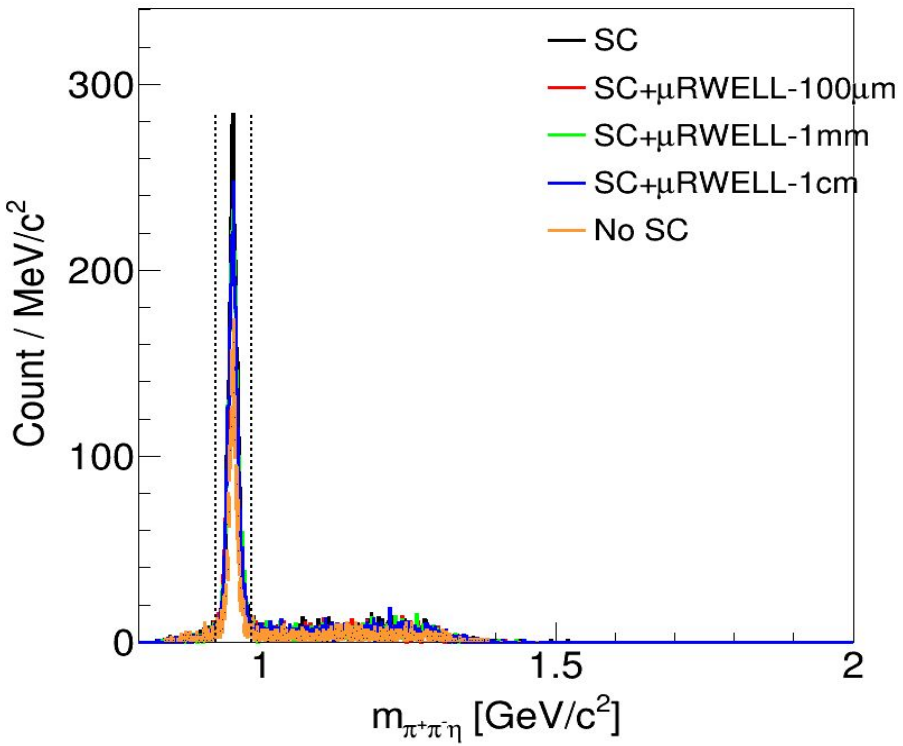


Gap allowing uRWELL cablings to came out

g p -> a_2(1700) pi^+ p

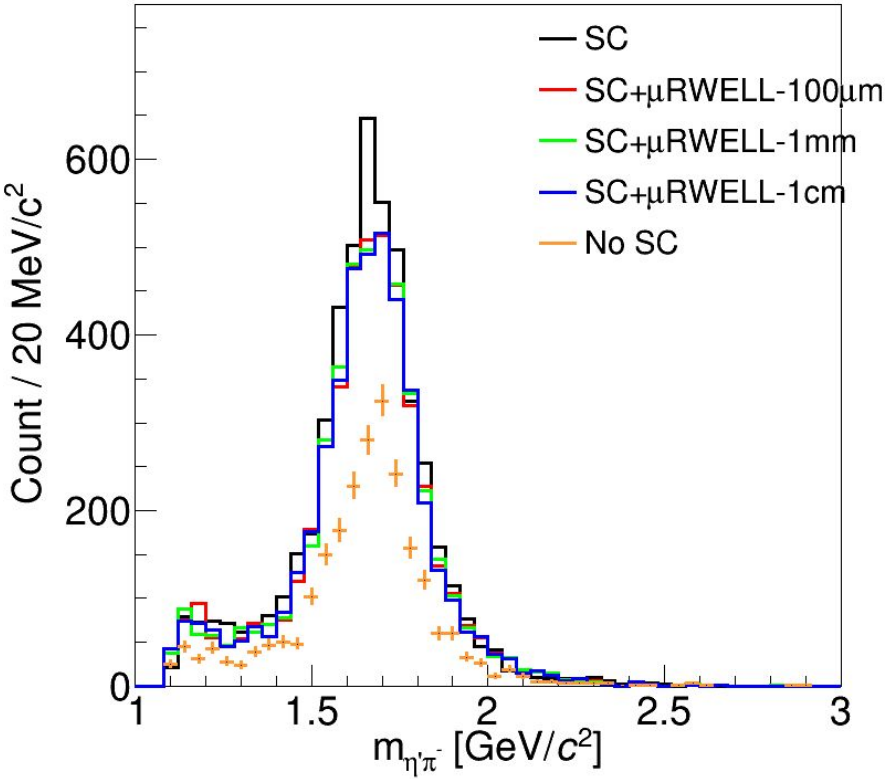
a_2 -> eta' pi^-, eta' -> pi^+pi^- eta, eta -> g g



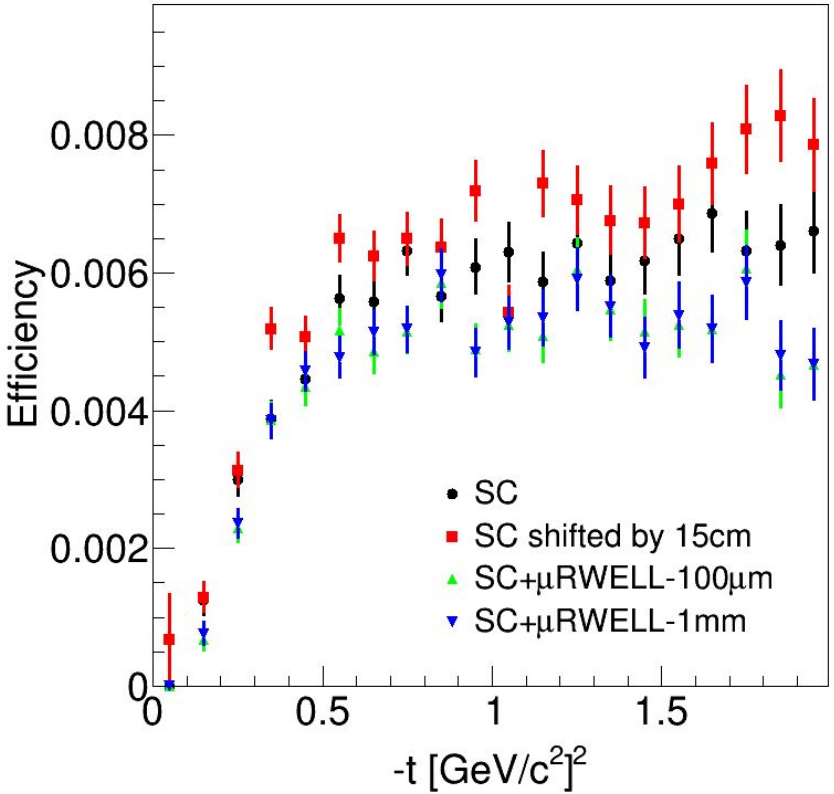


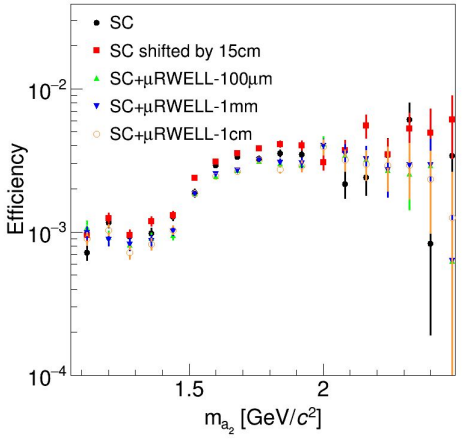
Jefferson Lab

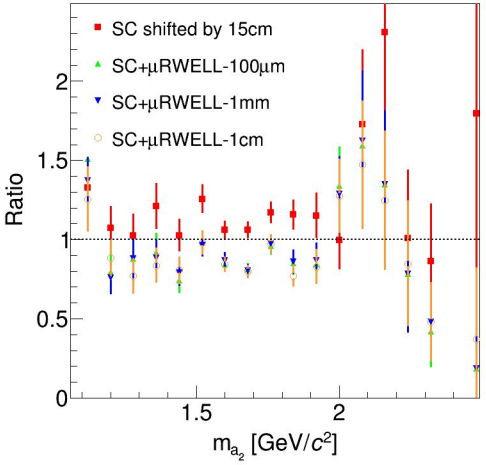
a_2 -> eta' pi^-, eta' -> pi^+pi^- eta, eta -> g g



Efficiency vs. t/m







- Shift appears to improve efficiency
- geantBEAM simulation underway to evaluate low energy photon background level

Conclusion

- SC has to be shifted downstream if new detector added in the free space between target vacuum chamber and SC
- Efficiency slightly improve if SC is moved downstream
- Background simulation is underway
- Between now and insert installation, a new mounting SC design could be tested