Exclusive, Diffractive and Tagging Publication Discussion

March 15

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Meeting time: biweekly Tuesday 10:30 am EST

Paper overleaf repository

- **Exclusive, Diffractive and Tagging Summary Paper**

  ecce-paper-phys-2022-03

- **eA Diffractive study (e + Pb ➜ e' + J/ψ + X and e + Pb ➜ e' + ϕ + X)**

  ecce-paper-phys-2022-02

- **eP Jpi production**
  - Led by Wangmei and Xinbai

eA Diffractive Study Paper

- **Process: e + Pb ➜ e’ + J/ψ + X and e + Pb ➜ e’ + ϕ + X**
- **Separate submission**
- **Further Simulation study**
  - Larger statistics: files are transferred to JLab
  - Particle gun study, simulation files are ready,
    - There is an issue with the simulation
- **Analysis code**
  - Event_Evaluator + after burner
- Simulation completed for **J/ψ**

ECCE Exclusive, Diffractive and Tagging Summary paper

- Diffractive and Tagging analysis notes
- Exclusive analysis notes
- Far forward and far backward region analysis notes
- XYZ meson analysis notes
- Far forward and backward detector notes

Simulation Status

- Simulation is ready to go
  - This morning
- Bug fixed:
  - Roman Pot location loading was not functioning properly
  - eA beam parameterization selection was wrongly implemented
- Remaining issue:
  - Low Q2 tagger configuration needs to be fixed
- Pending request:
  - DVCS (hi divergence and hi acceptance) [Done]
  - ep J/psi (hi divergence and hi acceptance) [Done]
  - eA J/psi (eAu) [Done]
  - Double tagging (hi divergence and hi acceptance) [Done]
  - eHe^4 DVCS (hi divergence and hi acceptance) [Done]
  - TCS (hi divergence and hi acceptance) [Done]
  - **XYZ meson**

```
90    // Beam Scattering configuration setting specified by CDR
91    //
92    // Option 1: ep-high-acceptance
93    // Option 2: ep-high-divergence
94    // Option 3: eA
95    //
96    // Enable::BEAM_COLLISION_SETTING = "ep-high-divergence";
97    // If you don't know what to put here, set it to ep-high-divergence
98    //
99    // Enable::BEAM_COLLISION_SETTING = "eA";
100   Enable::BEAM_COLLISION_SETTING = "ep-high-divergence";
```

Simulation Status

Diff and tagg wiki page:
https://wiki.bnl.gov/eicug/index.php/Diffractive_and_Tagging_Physics_Working_Group_Page

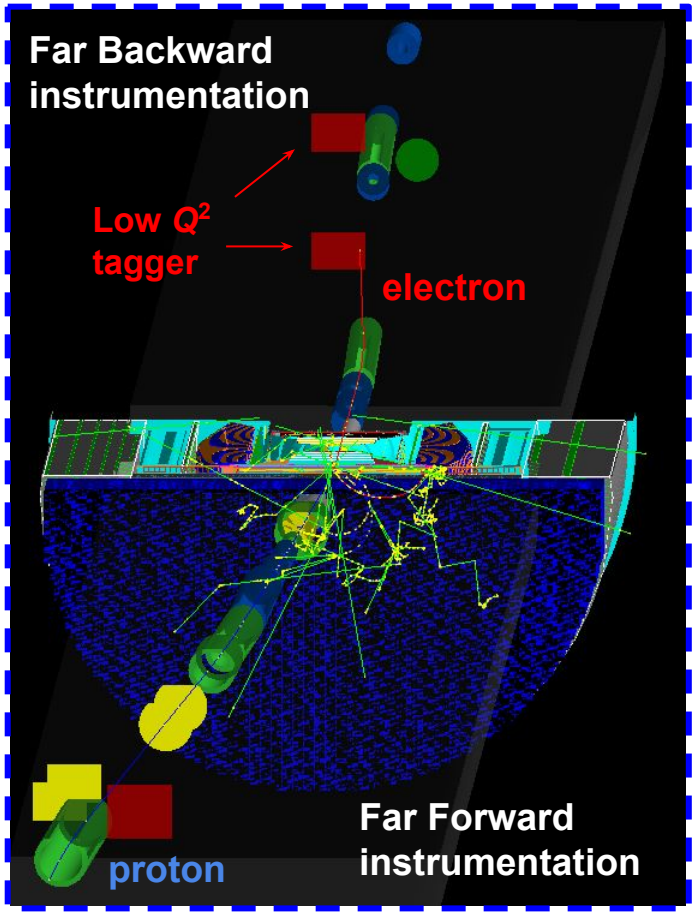
Check here:
https://docs.google.com/spreadsheets/d/1VFthz9dogk1DCxgdEtdiuPmTbxXhwVgyXeqCbPmswRw/edit?usp=sharing

Next step

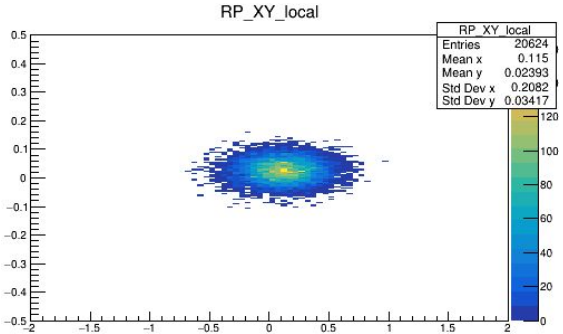
- **Different study groups**
  - Create relevant subsection
  - Create individual include files
  - Moving the key figures over from the notes

- **Convenor todo list:**
  - Bibliography
  - Author list and institution
    - Alphabetical order (under preparation)

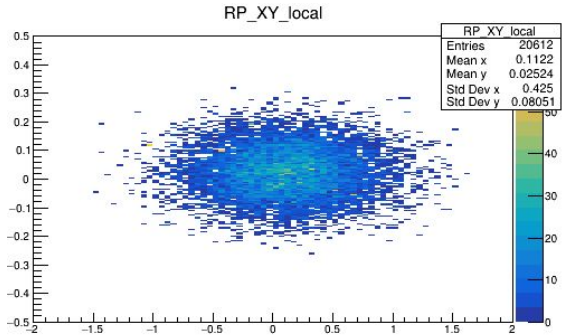
Simulation Update since Proposal Submission



- Farbackward beamline and low Q2 tagger are now in Fun4all
- ep and eA beam scattering parameterization are now in Fun4all



High Acceptance Setting



High Divergence Setting (proposal)

Simulation Status

- **Analysis module:**
  - **Please update your code**
    https://github.com/billlee77/bill_diff_tagg_script/blob/master/diff_tagg_ana/diff_tagg_ana.cc

```
//        cout << hit_iter->second->get_z(0) << "    " << RP_1_params.get_double_param("place_z") << "    "
//             <<  Enclosure_params.get_double_param("place_z") + RP_1_params.get_double_param("place_z") - 50  << endl;

//        RP_1_params.Print();

//        cout << "============================" << endl;
//        cout << RP_1_params.get_double_param("Layer1_pos_x") << endl;
//        cout << RP_1_params.get_double_param("Layer1_pos_z") << endl;
//        cout << RP_1_params.get_double_param("Layer1_rot_y") << endl;
//        cout << RP_1_params.get_double_param("Layer2_pos_x") << endl;
//        cout << RP_1_params.get_double_param("Layer2_pos_z") << endl;
//        cout << RP_1_params.get_double_param("Layer2_rot_y") << endl;

          //      cout << RP_1_params.get_double_param("place_z") << endl;

//        return 0;
//        exit(0);

          if (hit_iter->second->get_z(0) > Enclosure_params.get_double_param("place_z") + RP_1_params.get_double_param("Layer1_pos_z") - 50

//          return 0;

          h2_RP_XY_g->Fill(hit_iter->second->get_x(0), hit_iter->second->get_y(0));
```

Accessing the Layer 1 information

Accessing the Layer 2 information