

MC 2019 : milestones, tasks, deadlines for Jeopardy

- I sketched a first version of the MC19 task list (with the help of Maurik and Tongtong)**
- After this meeting, circulate the list among the EC members, collect comments and then put it on confluence (as done by Matt and Rafo for the 2016 data analysis)**
- The list will be periodically updated (if/when needed) depending on how work and task proceed**

Task List V1.0

Task 1 : Event generation (before SLIC)

- 1.a Implementation of new target and beam properties (thickness, density, beam current etc..)
- 1.b A' generation - prompt and displaced at different masses
- 1.c Rad, tritrig, wab, beam events

Tongtong

DL (tentative): first samples for kinematic checks (end of February)

Task 2 : Interaction with detector elements (in SLIC)

- 2.a Implementation of the new geometry and detector performances
- 2.b Mixing of background events (after SLIC)
- 2.c A' event processing (scheduling jobs,)
- 2.d Background event processing (scheduling jobs)

Tongtong

Task 3 : Readout and Trigger implementation

- 3a. Update SVT readout to handle the L0 and L1 slim sensors properly.
- 3b. Trigger Simulation for 2019. (Tongtong ?)

Task 4 : Full event reconstruction

- (i.e. running reconstruction on the batch farm, collect all the statistics needed)
- 4.a. A'
- 4.b. Background

Task 5: Compare and verify the simulation against data.

- 5.a: Verify that detector element efficiencies are correct.
- 5.b: Verify that WAB - trident look good.
- 5.c: Verify that all signal shapes look good.

(To be discussed with the analysis group)

Brief update (thanks to Tongtong for it)

- Tongtong and Takashi have been working hard focused on the 2016 MC tasks since people in the analysis group need the new samples urgently.

- Already some work has been done also on 2019 MC

TASK 1:

1.a

Tongtong made a proposal about parameters and samples for discussion in the analysis and MC group.

Parameters:

- 1) beam: 120 nA
- 2) target: 20 μm
- 3) ap mass: 50 75 100 150 200 250 300
- 4) target offset: $z = -7.5 \text{ mm}$
- 5) beam rotation: 30.5 mrad around y
- 6) Kinematic cuts in generators: minimum theta along y (5 mrad); minimum energy for final state particles needs to be discussed

One/two weeks from now, Tongtong will produce the first set of samples for ap, RAD, tritrig, wab, and beam before the SLIC level, and make some kinematic plots for discussion.

1.b

Statistics needs to be discussed

TASK 2:

2.a / 2.b

We have a lodd file for the new geometry and detector as well as the magnetic map, and it has been applied in SLIC Mixture with beam background is implemented after SLIC by hps-java. No issue for mixture

TASK 3:

3.a

Omar is focused on updates of SVT readout, and has made some progress.

If no other people are interest on that, Tongtong can work on it

TASK 4:

(from 2016 experience) 1-2 weeks to produce all samples for 2019 MC production at farm once MC chain is smooth.

Milestones for Jeopardy (to be reached before May):

M1) Validated simulations showing acceptance for long decay states (from Stepan's talk)

- Acceptance vs decay length plots

M2) Prove Data and MC are in reasonable agreement (?)

- Preliminary specific key plots ? , i.e. Energy sum showing the different contributions (rad, tri, wabs), momentum resolution for beam energy electrons, ...

M3) projected reach (from Stepan's talk)