

Introduction & Task list

- **Tasks on MC simulations**

- identify a contact for software group – **thanks Barak for serving as our contact!**
- ‘topological’ cuts to reduce pion contamination for scattered electron (-Barak)
- include beam effects, crossing angle, magnetic field & perform full detector simulation with particle ID cuts, efficiency, bg etc

👉 welcome to sign-up !

- **Discussion on beam effects in software WG meeting (-B. Page)**

- ✓ beam crossing angle (25 mRad for IP6)-> **large effects on distribution and momentum in hadron side**
- ✓ Other effects such as intrinsic beam energy spread, beam divergence, and crabbing momentum kicks
- Currently developing two approaches: A generator agnostic **after-burner** that boosts particle 4-vectors into the correct frame and a scheme that utilizes the internal **PYTHIA8 BeamShape** class which allow changes to beam momentum / vertex position directly in the generator.
 - **current comparison show good agreement**
- Details on implementation – crossing angle implemented in MC tutorial

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- Need to fill the computing resource estimation for software WG by June 10.

<https://docs.google.com/spreadsheets/d/1Fpzl20WqMalhbOqeGEiJMsXRwAvzisWRjCMfOHasUz0/edit?usp=sharing>

The screenshot shows a Google Sheet titled "ATHENA Computing Resource Estimates". The table below is a reproduction of the content visible in the spreadsheet.

	A	B	C	D	E	F
1	ATHENA Computing Resource Needs Estimates					
2	The goal of this spreadsheet is to build a justified computing and storage request.					
3	Please use one line for each type of study, e.g. "5 beam energy combos of pythia8 full detector simulations, 100M events to reach 5% uncertainties in 10 Q^2 and 10 x bins."					
4						
5						
6		Contact email	# events generator-level	# events fast simulation	# events full simulation	# events standalone particle gun si
7	Example Working Group					
8	5 beam energy combos of pythia8 full detector simulations, with 100M events each to reach 5% uncertainties in 10 Q^2 and 10 x bins	wouter.deconinck@umanitoba.ca	500M with pythia8	none	500M	none
9	50 standalone simulations of geant4 example N02 and 30 barrel HCAL simulations over central rapidity region	wouter.deconinck@umanitoba.ca		0	0 30 x 1M	50 x 10k
10	Software & Computing Working Group					
11						
12	Inclusive Working Group					
13						
14	Semi-Inclusive Working Group					
15						
16	Jets/HF/EW-BSM Working Group					
17						
18	Exclusive/Tagging Working Group					
19						
20	Tracking Working Group					
21						