Tagger Hodoscope Analysis Update

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Use PS-trigger data to cross-calibrate PS with tagger in order to better understand tagger performance

- study correlation between PS energy and tagger energy
- investigate tagging efficiencies: here defined as fraction of "good" PS triggers which have been tagged by the TAGH or TAGM
- How do these numbers change as a function of TAGH/TAGM ADC and discriminator thresholds?
- timing alignment
- first must determine counter-counter offsets for PS and tagger separately
- these slides will focus on the first 2 bullets, but work has started on timing and will hopefully allow an accurate determination of timing resolution

PSC trigger in stand-alone mode

- run: tagm_calib_312.0
- beam current: 50 nA
- radiator: 2e-5 RL
- collimator: 5 mm hole
- PS converter: 5e-3 RL

PS thresholds

- PS course: 150 ADC counts, 40 mV discriminator thr.
- PS fine: 110 ADC counts

tagm_calib_

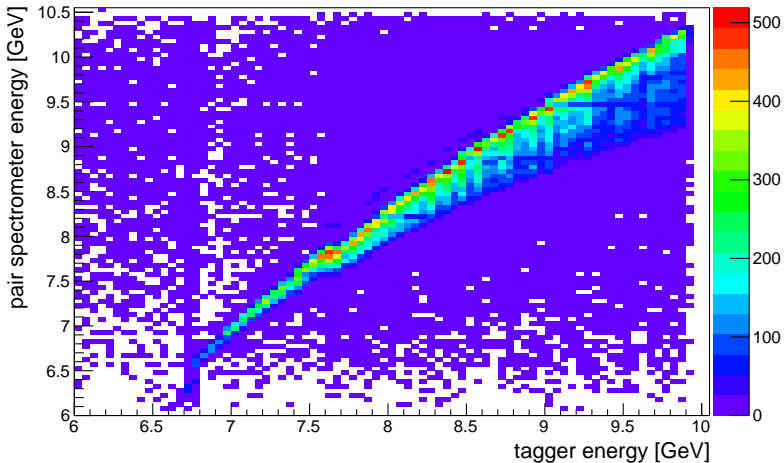| run	events	TAGH adc thr.	TAGH disc. thr.	TAGM adc thr.	TAGM disc. thr.
312.0	0.33 M	250	50 mV	110	15 mV
313.0	0.16 M	300	60 mV	115	20 mV
314.0	0.22 M	350	70 mV	120	25 mV
315.0	0.20 M	400	80 mV	125	30 mV

PS coincidences

- coincidences of e+/e- pairs in each arm, separately in PS and PSC
- geometrically coincident hits in PS and PSC
- fadc leading-edge time of each hit in prompt peak
- PS pulse height larger than 500 ADC counts
- PSC pulse height larger than 150 ADC counts

Tagger hit cuts

- fadc leading-edge time of each hit in prompt peak
- energy difference with PS less than 0.7 GeV
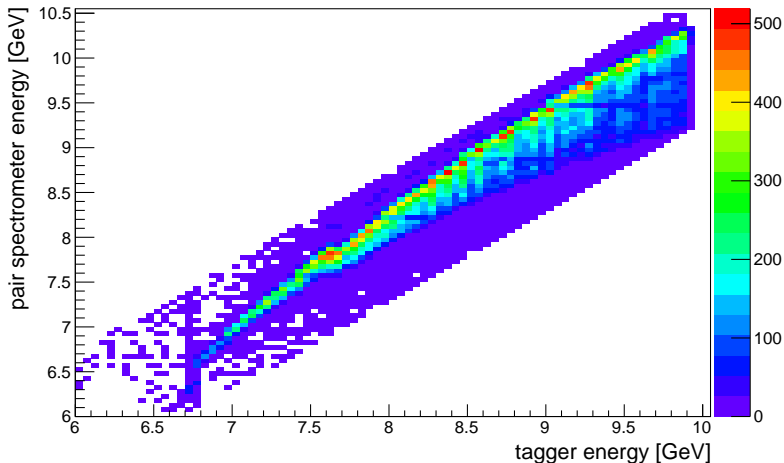- ADC-TDC matching cut is not included in following plots

pair spectrometer and tagger photon-energy correlation

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tagging efficiency