

# EIC Polarimeter Monthly Meeting

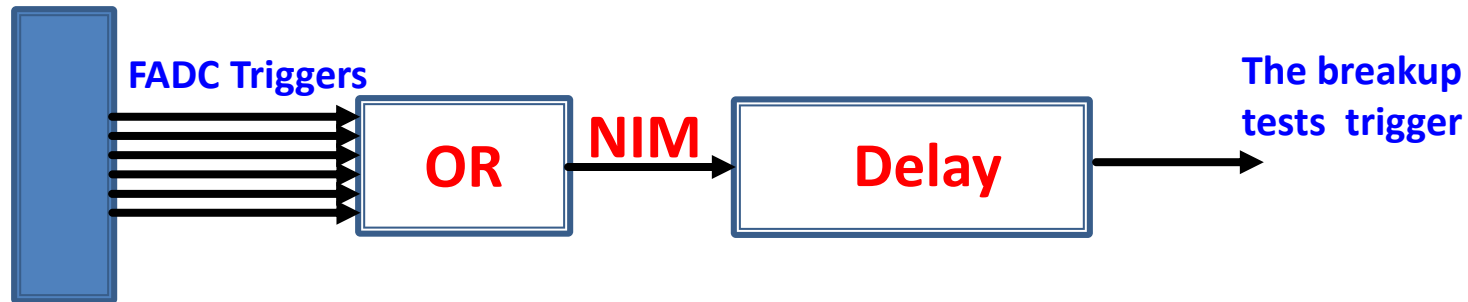
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## *Short comments about the $^3\text{He}$ breakup tests*

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HJET DAQ  
FP-SD



Possible usage of the breakup tests trigger:

- External trigger input in the “spare DAQ” FP-SD
- Signal input in a tests dedicated FADC (self-trigger is assumed) in the HJET or spare DAQ
- **Signal input in a regular HJET FADC. All the test signals should be input to this FADC.**

This option requires minimum changes in the HJET DAQ. However, a possibility to implement depends on

- **Number of the test signals**
- **Relative delay between the tests and HJET signals.**

- ✓ I suggest to make the breakup tests using 10 GeV  $^3\text{He}$  beam (the RHIC injection energy)
  - For such beam energy, breakup and elastic events can be partially separated which allows us to more accurately evaluate the efficiency of the breakup vetoing and probability of the accidental vetoing of the elastic events
  - No need to accelerate the  $^3\text{He}$  beam
  - However, the efficiency of the breakup particle detection in the scintillator counter may be reduced due to wider angles of the constituent nucleons  $p_T/p_{\text{beam}}$
- ✓ I expect that main problem with the breakup vetoing will be high rate in the counters.
  - Any signal in the veto counter, correlated with a bunch, will “kill” the whole bunch.
  - Is it likely that for a  $10^{11}$  particle beam bunch, no accidental signals will be detected in a few cm size detector located in a few cm from the beam line?
  - The considered trigger should allow to evaluate significance of the problem