Resurrecting L3 BDT for simulation

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Simulation input
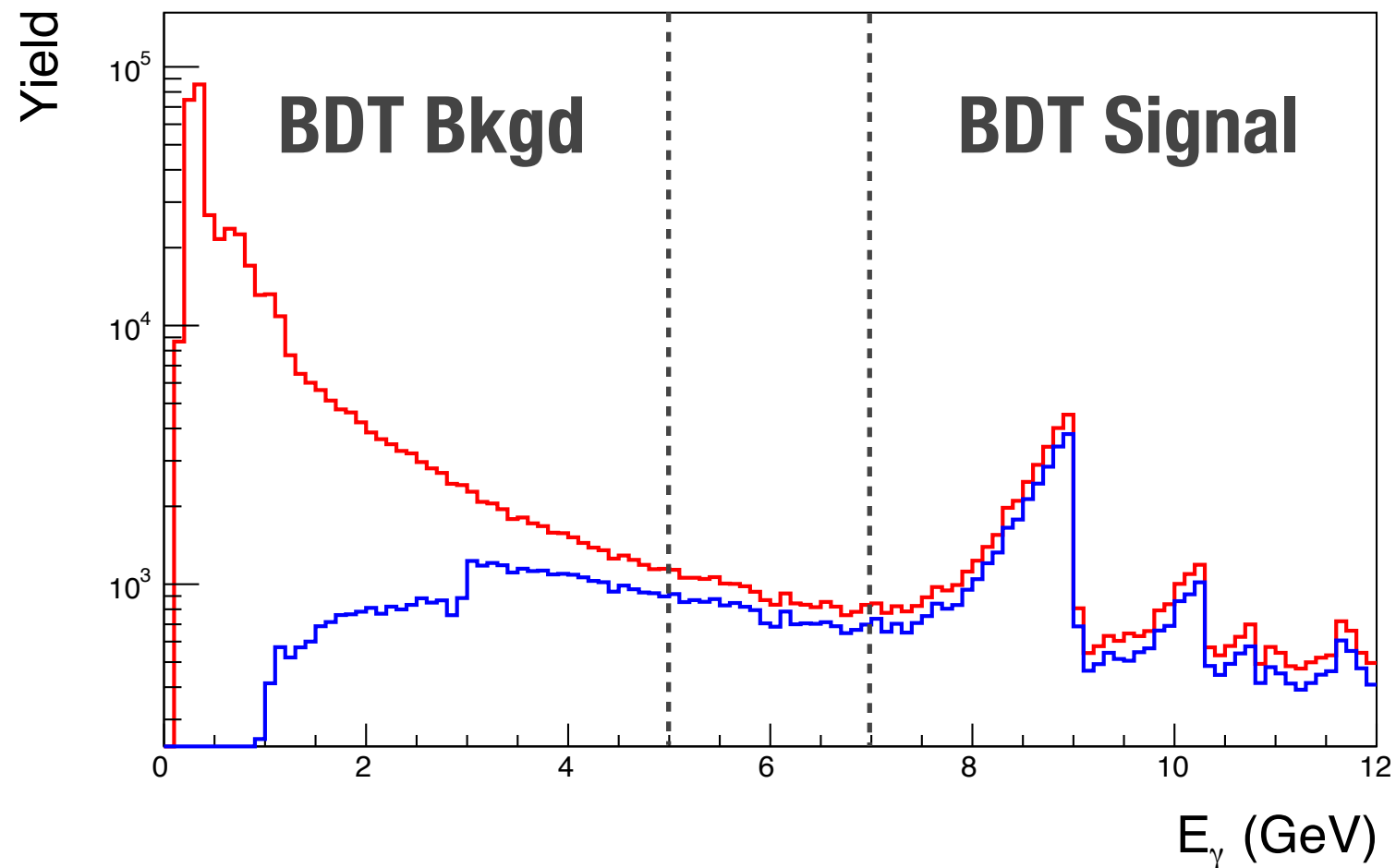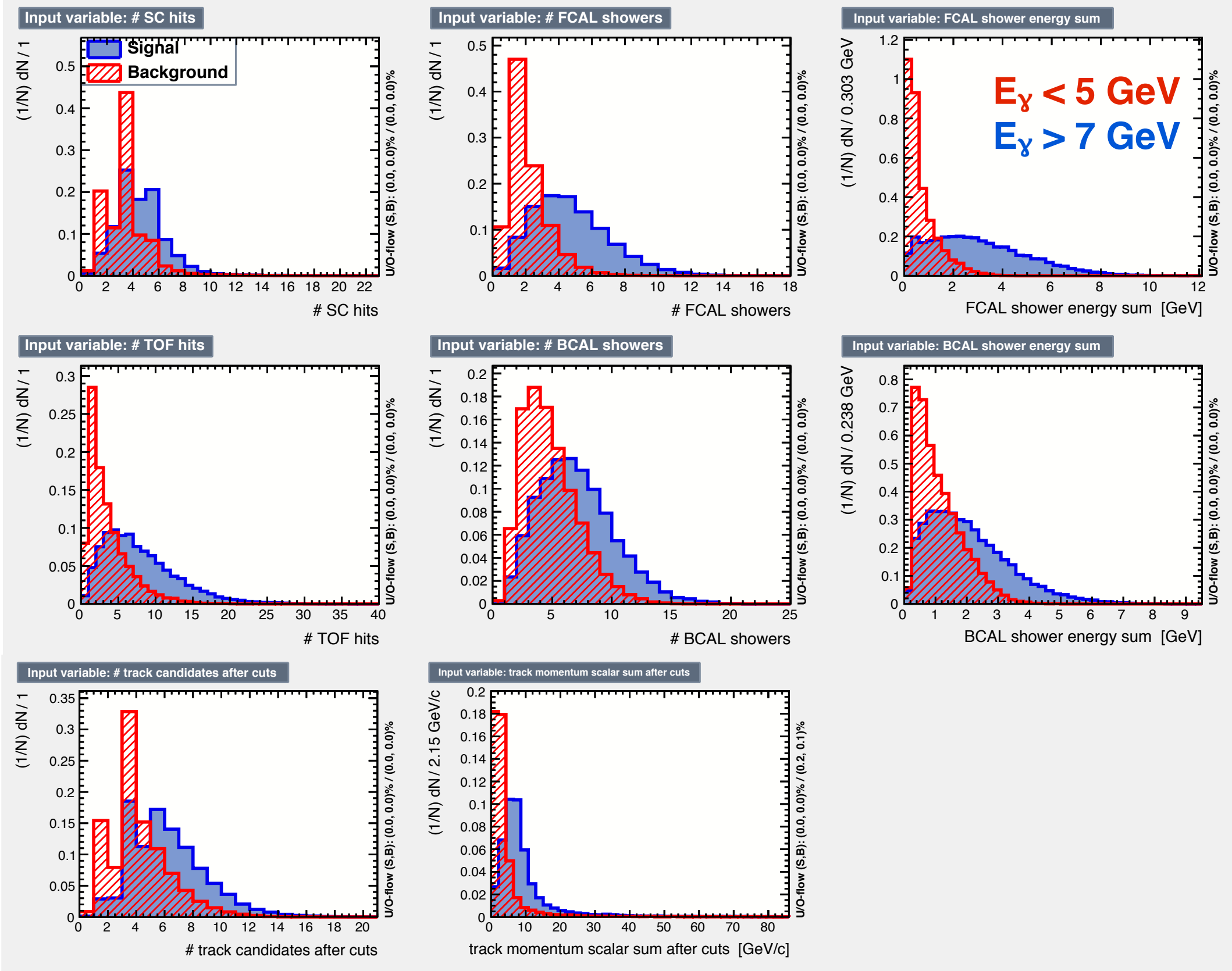
* bggen simulated with Spring 2016 conditions

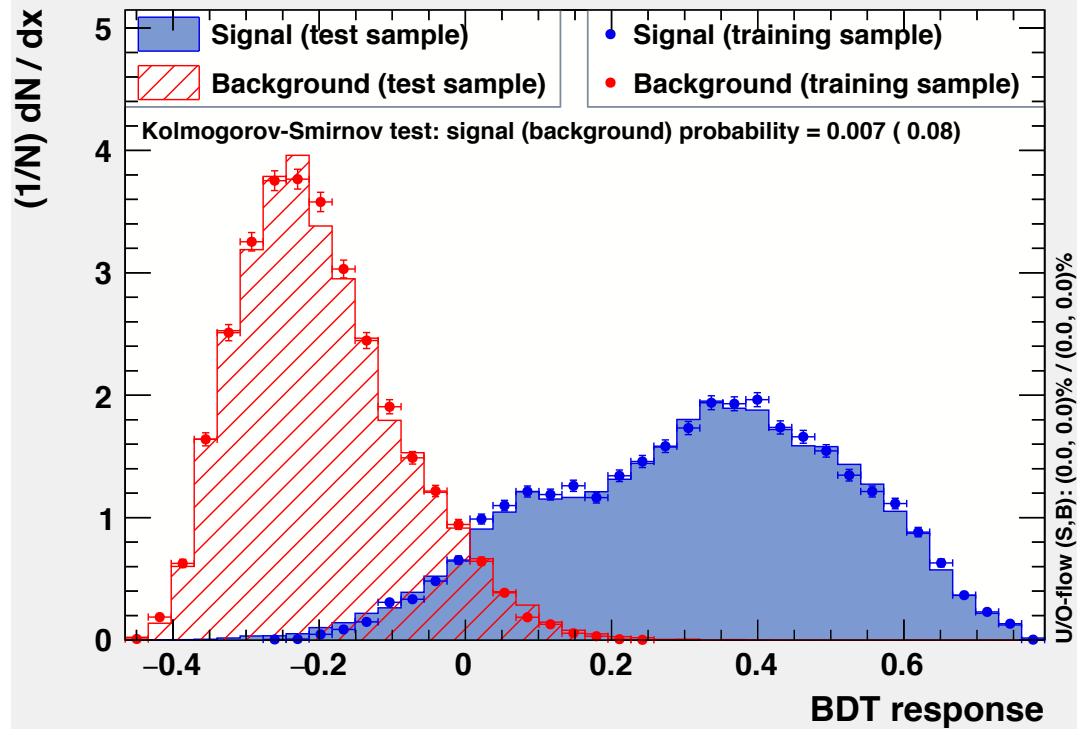 **https://halldweb.jlab.org/wiki/index.php/Level-3_Trigger_Meetings/Simulation-Status**

* Simple emulation of L1 trigger, probably incorrect

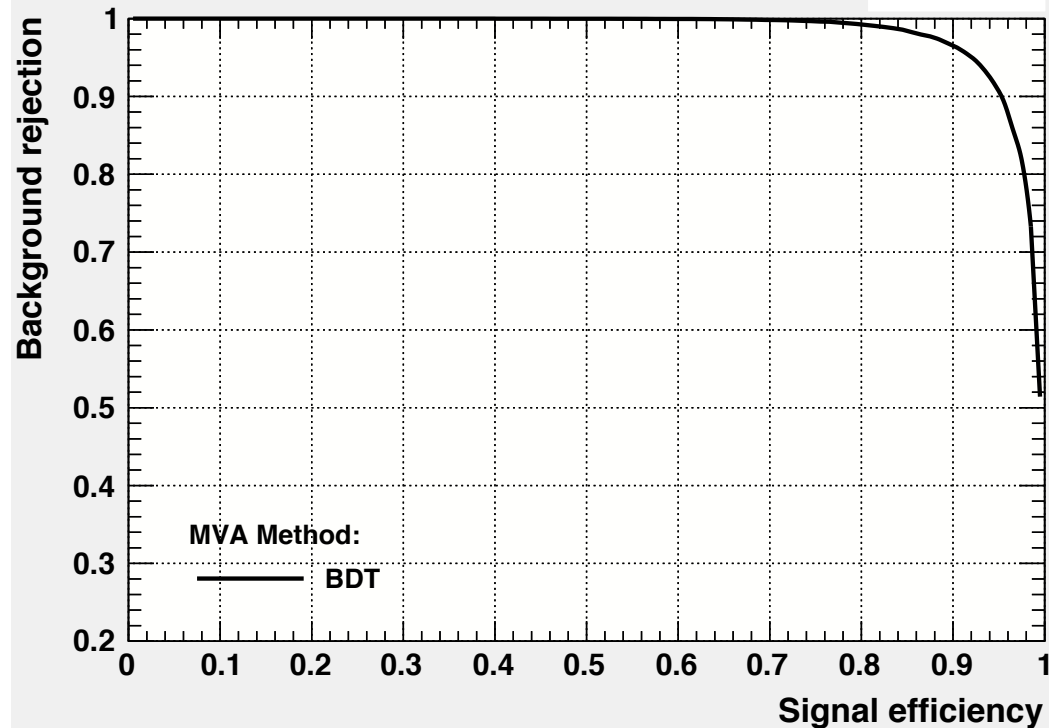 * Revisit and validate with thresholds from data (Sasha+RCDB)

Level-3 BDT Inputs

Level-3 BDT Training

--- Factory : Ranking input variables (method specific)...
--- BDT   : Ranking result (top variable is best ranked)
--- BDT   : --
--- BDT   : Rank : Variable   : Variable Importance
--- BDT   : --
--- BDT   :   1 : EfcalShowers   : 2.390e-01
--- BDT   :   2 : EbcalShowers   : 1.865e-01
--- BDT   :   3 : Ptot_tracks_cand : 1.727e-01
--- BDT   :   4 : Nfcal_showers   : 8.231e-02
--- BDT   :   5 : Ntof_point   : 8.176e-02
--- BDT   :   6 : Nbcal_showers   : 7.971e-02
--- BDT   :   7 : Ntrack_candidates : 7.950e-02
--- BDT   :   8 : Nstart_counter   : 7.859e-02
--- BDT   : --

Level-3 BDT Evaluation

L3 Efficiency = 0.935 @ 20 kHz
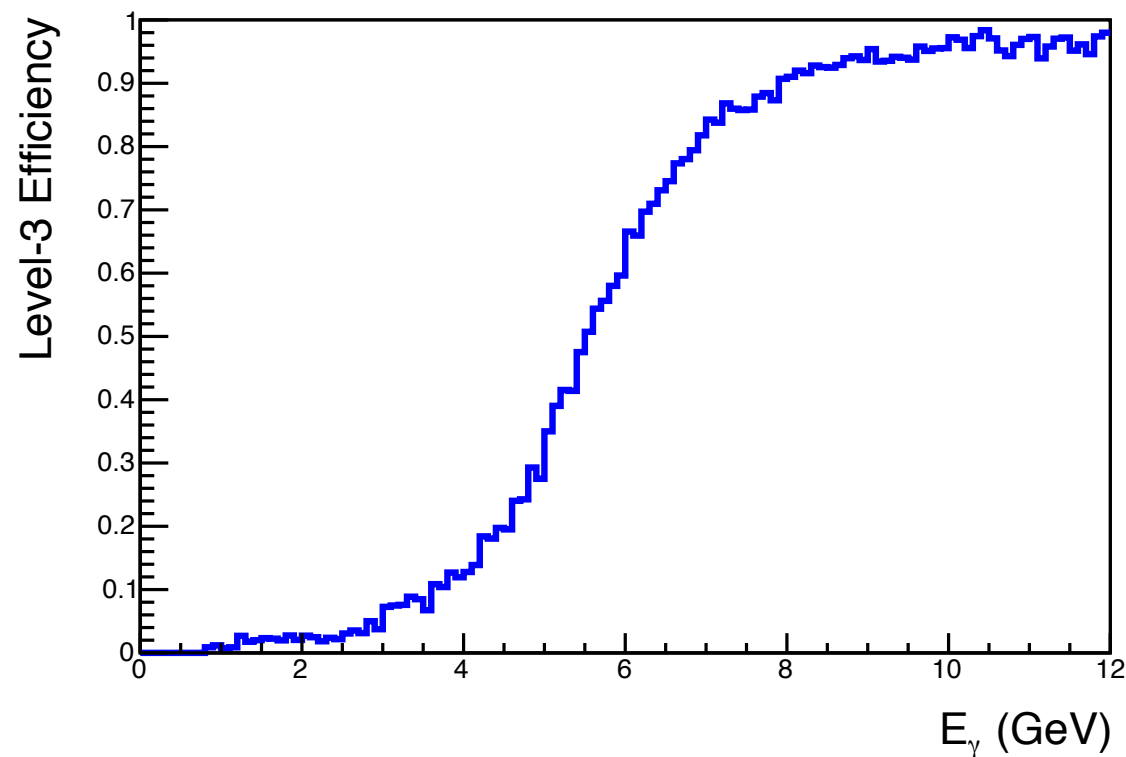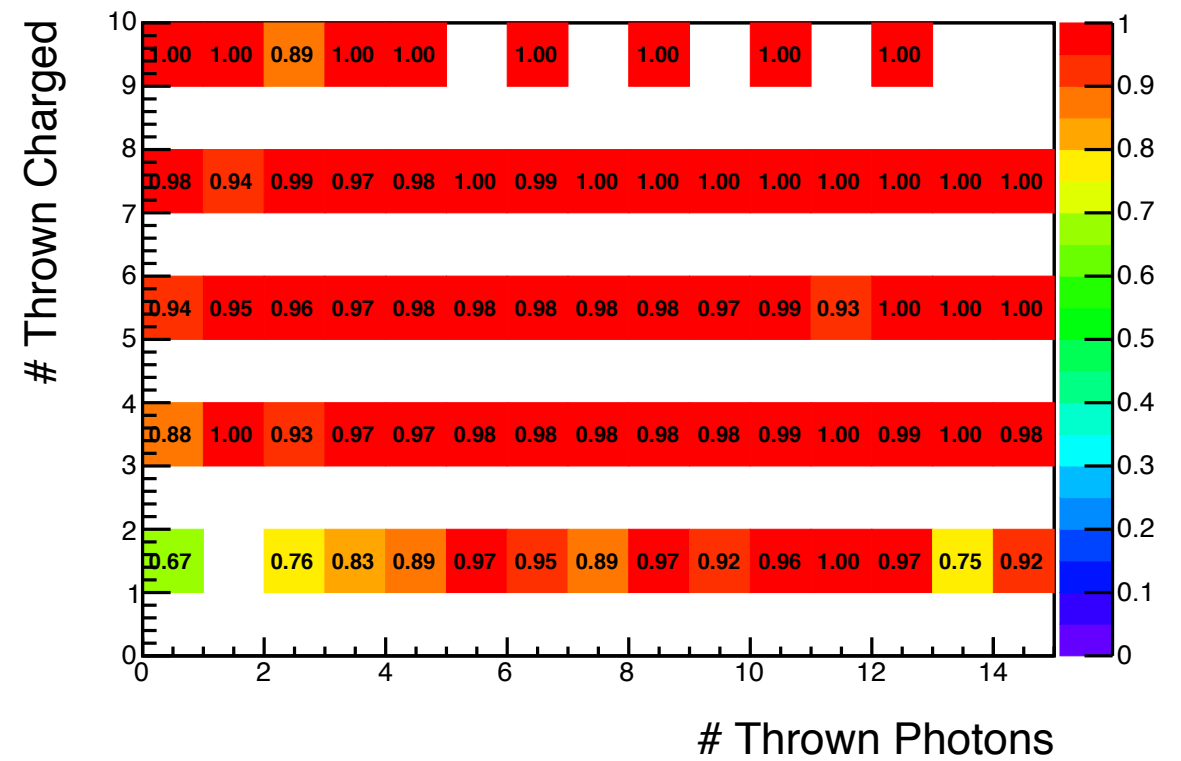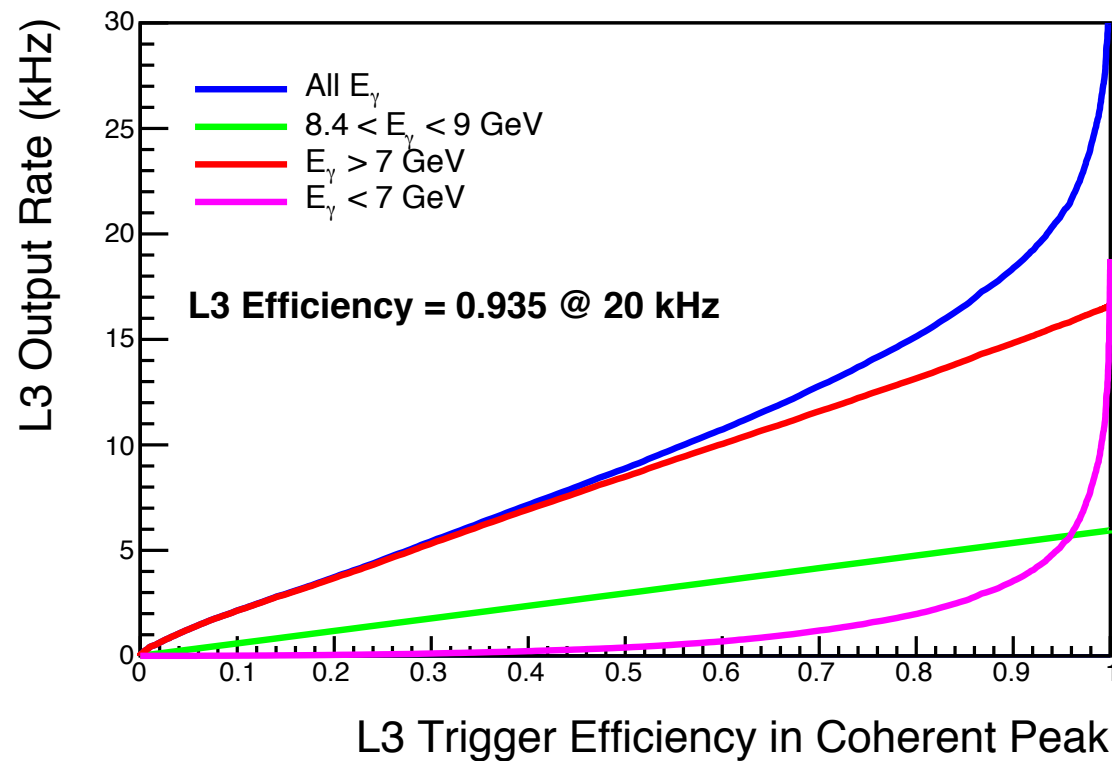
- **✳** Machinery resurrected for training and evaluating BDT for simulation

- **✳** Similar performance as seen in studies ~2 years ago

- **✳** Lower efficiency for low multiplicity final states