

Illustration of proposed fixes of RESKinematicGenerator

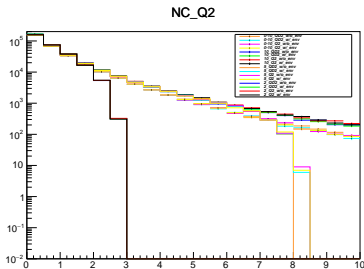
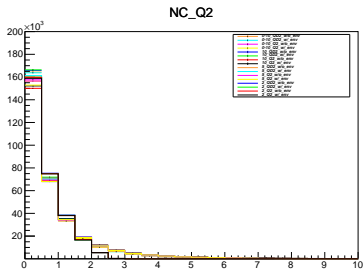
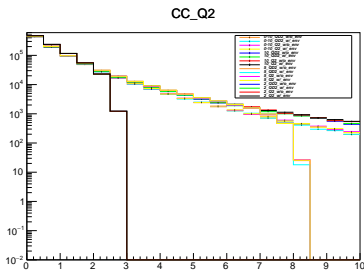
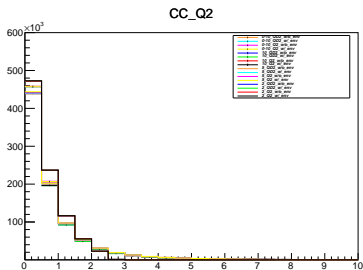
I. Kakorin

June 18, 2023

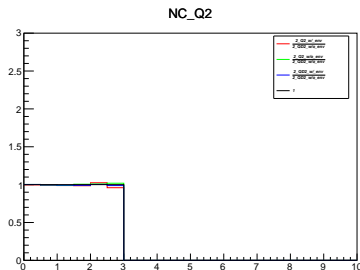
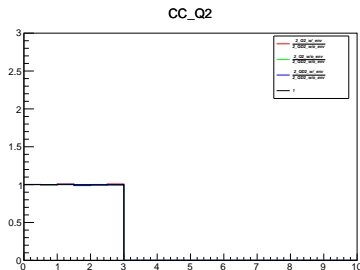
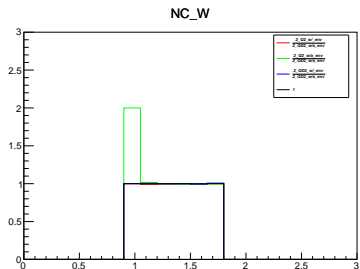
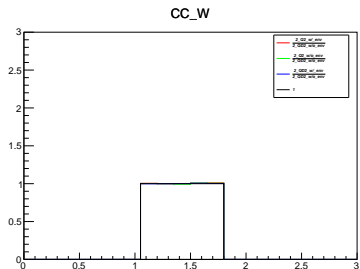
Description of fixes:

- ▶ Max search and the envelope in terms of Q^2 -variable – get rid of the variable Q_D^2 (denoted in the figure as: $Q2_w/_env$);
- ▶ Only max search in terms of Q^2 -variable – get rid of the variable Q_D^2 and the envelope (denoted as: $Q2_w/o_env$);
- ▶ Max search and the envelope in terms of Q_D^2 -variable – almost as original code, but with correct maximum for the envelope (denoted as: $QD2_w/_env$);
- ▶ Only max search in terms of Q_D^2 -variable – get rid of the envelope (denoted as: $QD2_w/o_env$).

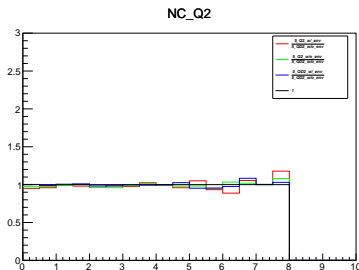
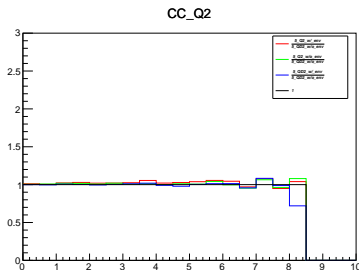
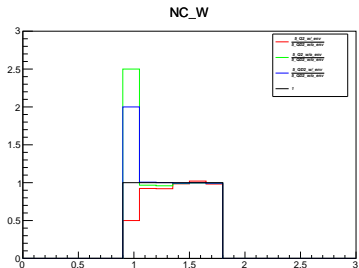
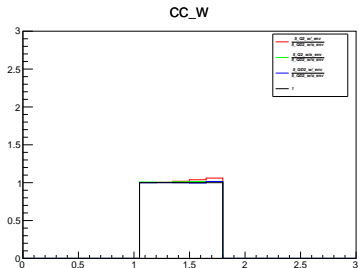
Q^2 -distributions for energies 2, 5, 10 GeV, energy range 0–10 GeV in linear and log scales for CC and NC



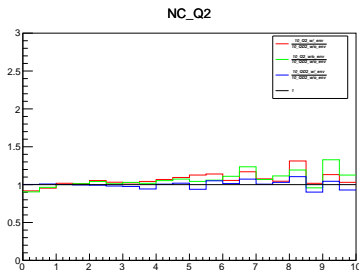
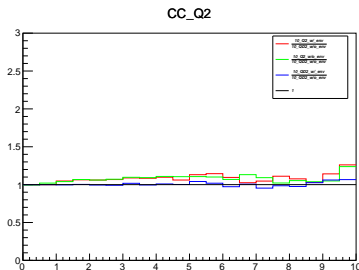
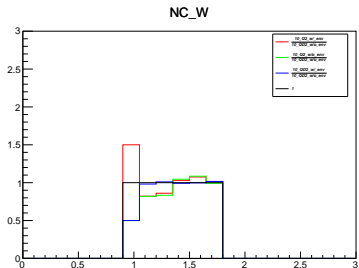
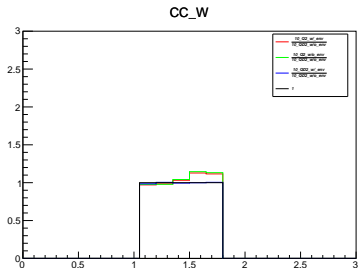
The ratio of W - and Q^2 -distributions for energy 2 GeV



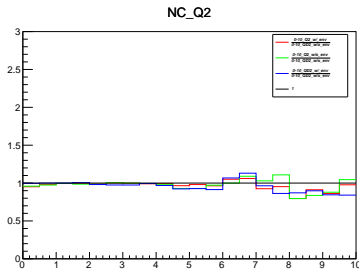
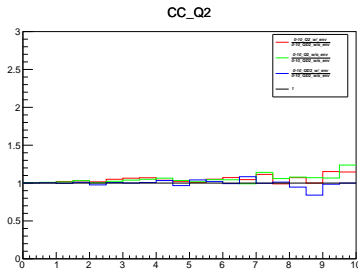
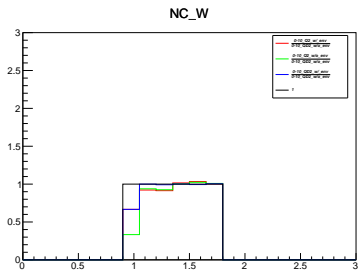
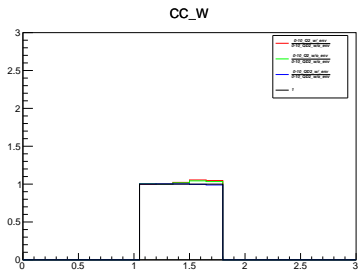
The ratio of W - and Q^2 -distributions for energy 5 GeV



The ratio of W - and Q^2 -distributions for energy 10 GeV



The ratio of W - and Q^2 -distributions for energy range 0–10 GeV



Average time generation for energy range 0–10 GeV

Approximate processing time/event:

- ▶ *Q2_w/_env* – 0.00258668 s
- ▶ *Q2_w/o_env* – 0.00195731 s
- ▶ *QD2_w/_env* – 0.00144977 s
- ▶ *QD2_w/o_env* – 0.000895288 s