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2D vs 1D yields

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Overview

- Previously checked 2D vs 1D yields from SK_plots2015
  - Agreement was good for all "styles" with only small CCQE differences
- After modifications to make jointfit code work with 2D splines I compared my kinematic plots to those from VALOR
- Saw differences in some bins and whilst investigating this I found that my 1D and 2D rates no longer agree
- Have checked 1D version against MaCh3 note and see good but not perfect agreement
  - 1D MaCh3 rates agree with 2D VALOR rates to less than 1%

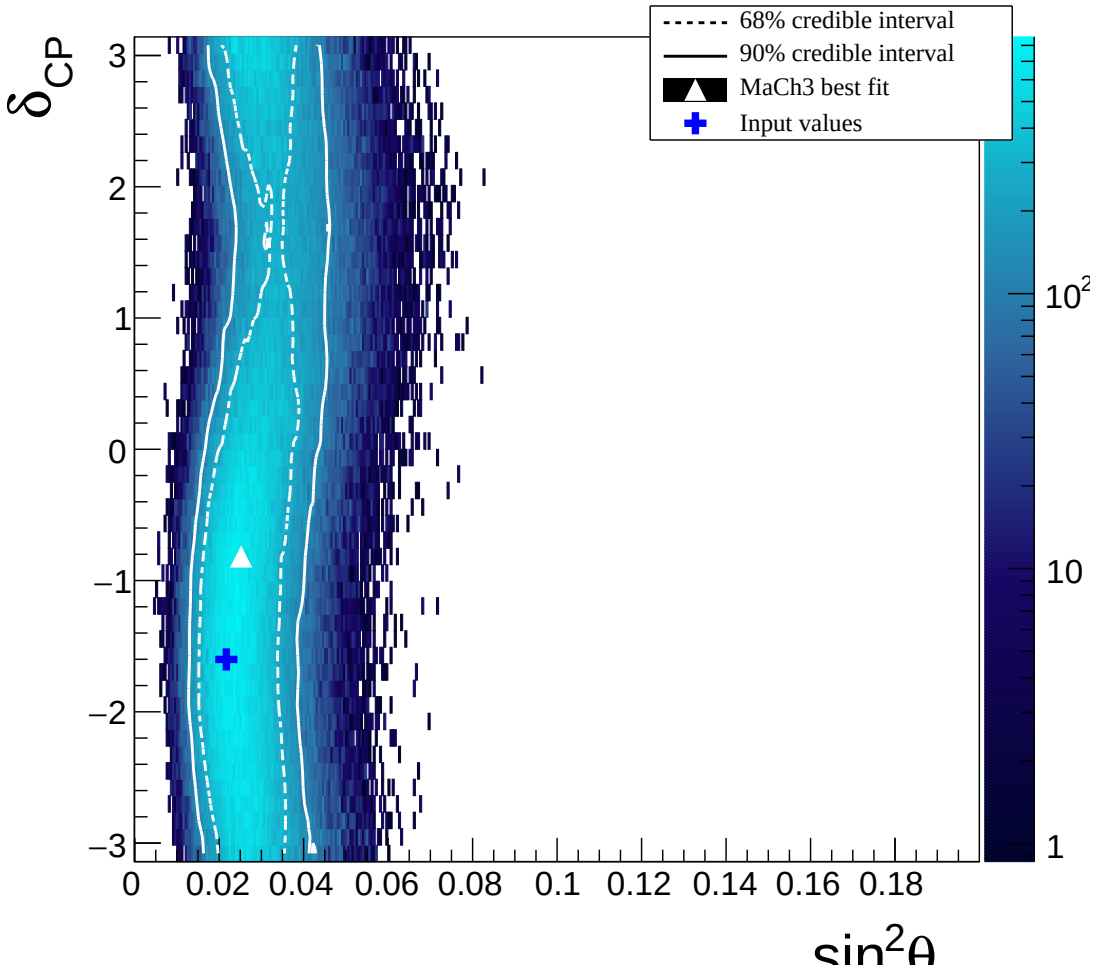
Current situation

- Rates from styles 0 and 1 agree
- Style 2 has differences for nue sample in CCQE, CC1pi, CCCoh (osc only), NCPi0, NCPi+- and 2p-2h (osc only)
- Have isolated difference to xsec_w_1 weight in samplePDFNue, leads to $\sim$10% differences

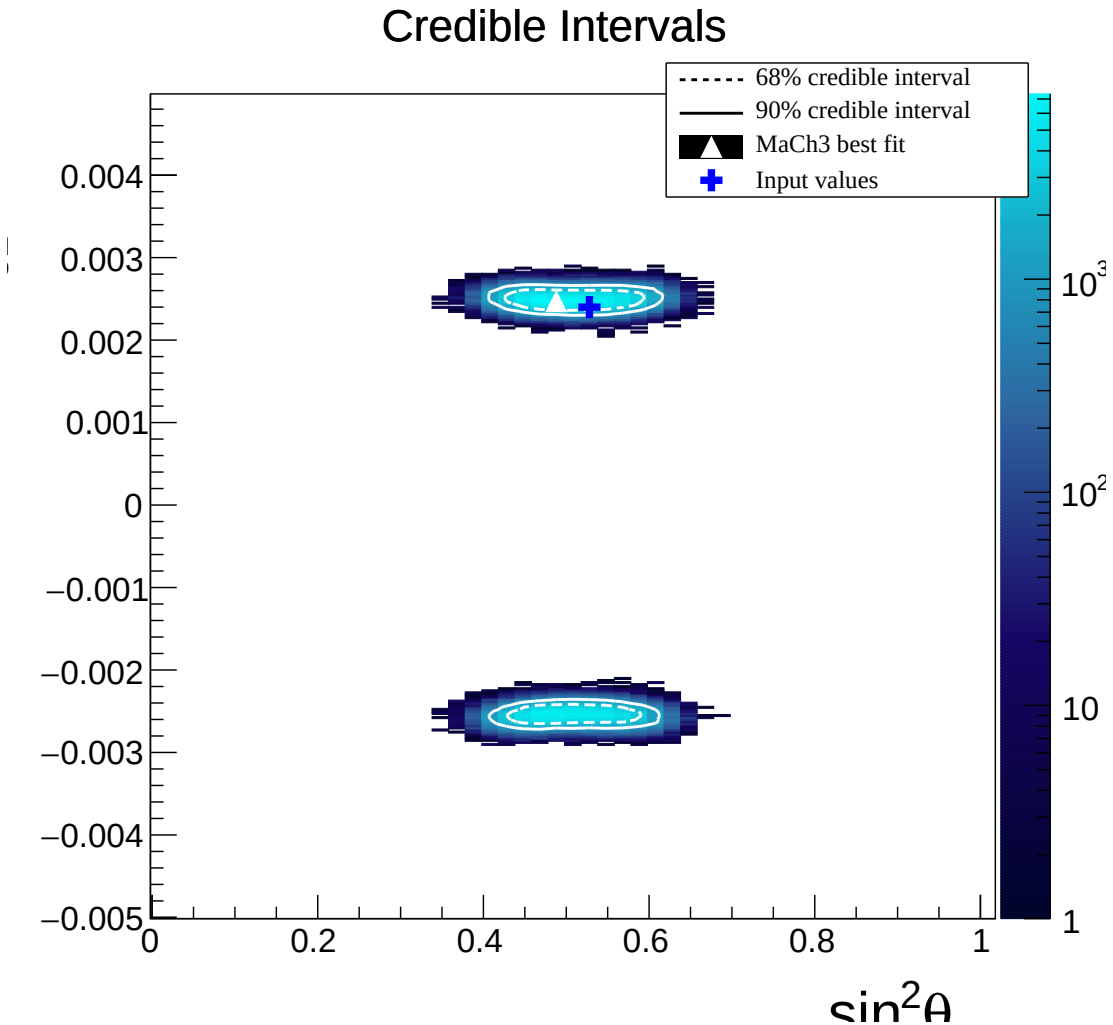
2D Markov Chain

- Also ran 1M event chain using GPU machine at IC
  - Able to run 2 jobs at a time (just)
- Took $\sim$3 days
- Caveat that above differences might affect the results

1M step chain contour - appearance



1M step chain contour - disappearance



- Can run chains in 2D
- 2D vs 1D rate differences being investigated
- Agreement with VALOR good in most bins
  - 2 bins do see significant difference