

Table: nuiscomp 50k events

| Dial        | Execution time | Likelihood Joint FCN |
|-------------|----------------|----------------------|
| nominal     | 20s            | 350.246              |
| FrCEx_N     | 23s            | 350.246              |
| FrInel_N    | 24s            | 350.246              |
| FrAbs_N     | 23s            | 350.246              |
| FrCEx_pi    | 23s            | 350.246              |
| FrInel_pi   | 24s            | 350.246              |
| FrAbs_pi    | 25s            | 350.246              |
| FrElas_N    | 25s            | 350.246              |
| FrPiProd_N  | 22s            | 350.246              |
| FrElas_pi   | 25s            | 350.246              |
| FrPiProd_pi | 26s            | 350.246              |
| MFP_N       | 143s           | 337.662              |
| MFP_pi      | 242s           | 309.801              |
| FormZone    | 295s           | 337.248              |

## card

genie\_parameter <param> -1.0 -3.0 3.0 1.0 FIX

sample MINERvA\_CC1pip\_XSec\_1DTpi\_nu\_fluxcorr GENIE:/PATH/gntp.MINERvA\_fhc\_numu.CH.2500000.1.ghep.root  
sample MINERvA\_CC1pip\_XSec\_1Dth\_nu\_2017 GENIE:/PATH/gntp.MINERvA\_fhc\_numu.CH.2500000.1.ghep.root  
sample MINERvA\_CC1pip\_XSec\_1Dpmu\_nu\_2017 GENIE:/PATH/gntp.MINERvA\_fhc\_numu.CH.2500000.1.ghep.root  
sample MINERvA\_CC1pip\_XSec\_1Dthmu\_nu\_2017 GENIE:/PATH/gntp.MINERvA\_fhc\_numu.CH.2500000.1.ghep.root  
sample MINERvA\_CC1pip\_XSec\_1DQ2\_nu\_2017 GENIE:/PATH/gntp.MINERvA\_fhc\_numu.CH.2500000.1.ghep.root  
sample MINERvA\_CC1pip\_XSec\_1Denu\_nu\_2017 GENIE:/PATH/gntp.MINERvA\_fhc\_numu.CH.2500000.1.ghep.root