

Analysis Documentation for Clas12 Sidis Tuple Maker

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1 How to make tuples

Example:

```
./tuplemaker.sh --in=/work/clas12/rg-a/montecarlo/fall2018/torus-1/clasdis/nobg/DIS_pass1_997_1002.hipo  
--out=mc_electrons.root --isMC --skipEvents=600000 --N=300000 --includeElectrons
```

This creates opens the file `/work/clas12/rg-a/montecarlo/fall2018/torus-1/clasdis/nobg/DIS_pass1_997_1002.hipo`, and outputs a file `mc_electrons.root`. The `--isMC` flag tells the program that the input file is from a Monte-Carlo simulation. The optional `--skipEvents` and `--N` arguments tells the program to skip the first 600k events, and then processes the next 300k events. The output contains only the electrons tuple, as specified by the `--includeElectrons` flag. The hadrons, dihadrons and dipions tuples can be created by using the `--includeHadrons`, `--includeDihadrons`, and `--includeDipions` flags respectively. If no flag for including a tuple in the output is provided, then the program will terminate without processing any data.

2 Trees generated

electrons all electrons that pass fiducial, PID, and DIS cuts. There may be multiple entries per event if there are multiple DIS electrons in the event.

hadrons DIS electron + hadron. There may be multiple entries per event if there are multiple hadrons in the event.

dihadrons DIS electron + leading pion + another hadron (which may or may not be a pion)

dipions DIS electron + pion + second pion. Neither pion is required to be leading.