

`/group/halld/Software/SRC/lumi` (on ifarm)

source `setenv.csh` to set up variables

I. Get flux and lumi for a single run:

```
calc_flux.py -r run_number -e emin
```

Example:

```
./calc_flux.py -r 90267 -e 6.0
```

Analyze run: 90267

Number of runs: 1

Run number: 90267

Beam energy 10.812000

Target Carbon

Total flux (E > 7.0 GeV) (10e12):	0.2603228	Lumi (per nucleus) (pb-1)	0.0439965
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Total flux (E > 8.0 GeV) (10e12):	0.2051478	Lumi (per nucleus) (pb-1)	0.0346715
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Total flux (E > 6.0 GeV) (10e12):	0.2861831	Lumi (per nucleus) (pb-1)	0.0483671
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```
./calc_flux.py -r 90267 -e 10.0
```

Analyze run: 90267

Number of runs: 1

Run number: 90267

Beam energy 10.812000

Target Carbon

Total flux (E > 7.0 GeV) (10e12):	0.2603228	Lumi (per nucleus) (pb-1)	0.0439965
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Total flux (E > 8.0 GeV) (10e12):	0.2051478	Lumi (per nucleus) (pb-1)	0.0346715
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Total flux (E > 10.0 GeV) (10e12):	0.0303359	Lumi (per nucleus) (pb-1)	0.0051270
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II. Get flux and lumi for a list of runs:

```
calc_flux.py -f list_of_runs -e emin
```

Format of the file list of runs:

```
run_90265  
run_90267  
run_90269  
run_90270  
run_90272  
run_90273
```

Example:

```
./calc_flux.py -f list_of_runs/list_of_runs_carbon1 -e 6.0
```

Use list of runs from: list_of_runs/list_of_runs_carbon1

Number of runs: 77

90265

90267

.....

Run number: 90351

Beam energy 10.811000

Target Carbon

Total flux (E > 7.0 GeV) (10e12): 0.1811496 Lumi (per nucleus) (pb-1) 0.0306156

Total flux (E > 8.0 GeV) (10e12): 0.1411336 Lumi (per nucleus) (pb-1) 0.0238526

Total flux (E > 6.0 GeV) (10e12): 0.1997113 Lumi (per nucleus) (pb-1) 0.0337527

```
=====  
===== ALL RUNS =====  
=====
```

Total flux (E > 7.0 GeV) (10e12): 15.9208184 Lumi (per nucleus) (pb-1) 2.6907361

Total flux (E > 8.0 GeV) (10e12): 12.5012493 Lumi (per nucleus) (pb-1) 2.1128036

Total flux (E > 6.0 GeV) (10e12): 17.5508217 Lumi (per nucleus) (pb-1) 2.9662187

III. Get a shape of the photon spectrum:

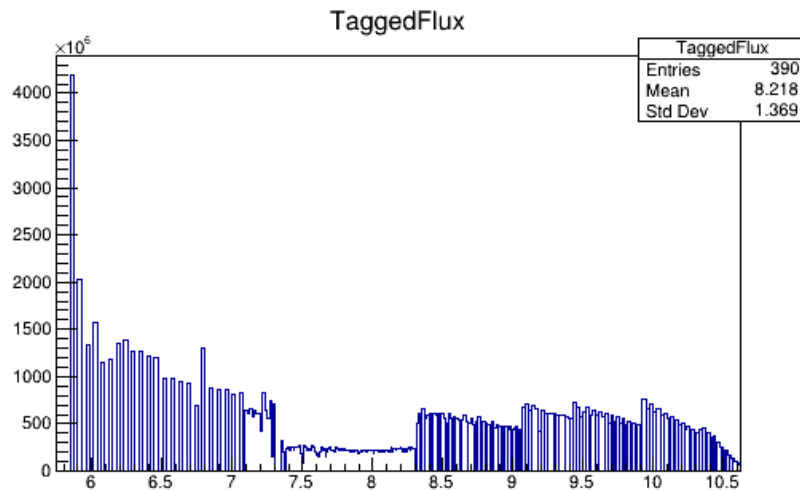
```
plot_flux.py -r run_number -o output_file  
plot_flux.py -f list_of_runs -o output_file
```

Format of the file list of runs:

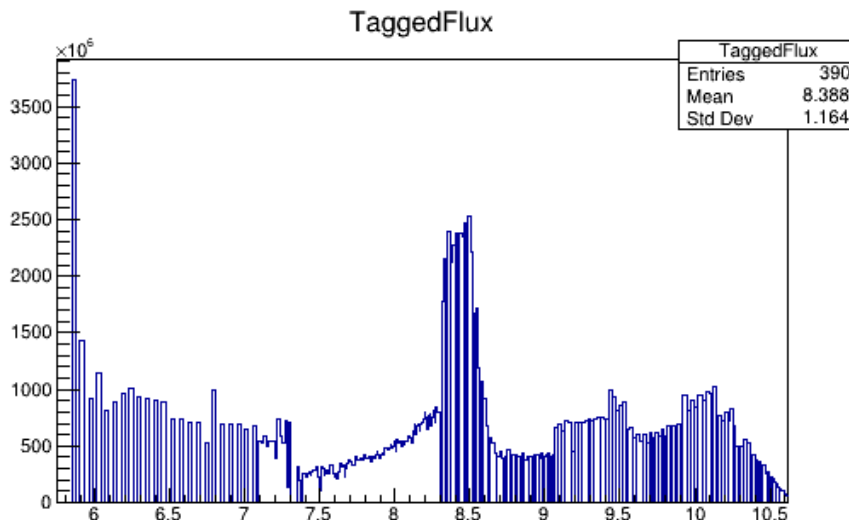
```
run_90265  
run_90267  
run_90269  
run_90270  
run_90272  
run_90273
```

Example:

```
./plot_flux.py -r 90266 -o run_90266.root
```



```
./plot_flux.py -r 90286 -o run_90286.root
```



Example:

```
./plot_flux.py -f runs_90266_90286.txt -o combined.root
```

