

Hi Stefano,

one example I just took from an event file looks like this:

Toggle Spoiler

```
8      24
N      Id Ist  M1  M2  DF  DL    px    py    pz    E    t    x    y    z
0 88888 2  -1  -1   1   2 0.0001 -0.0000 9.8081 10.7911 0.0000 0.0000 0.0000
0.0000
1  431  2   0   0   3   4 -0.1031 0.1937 6.0957 6.4094 0.0000 0.0000 -0.0000 0.0000
2 -10431 2   0   0   9  10 0.1032 -0.1937 3.7124 4.3817 0.0000 0.0000 -0.0000
0.0000
3  331  2   1   1   5   6 0.1644 -0.2514 1.6517 1.9331 0.5596 -0.0090 0.0169 0.5322
4  211  1   1   1  -1  -1 -0.2675 0.4451 4.4439 4.4764 0.5596 -0.0090 0.0169 0.5322
5  113  2   3   3   7   8 -0.2246 -0.2185 1.0231 1.1931 0.5596 -0.0090 0.0169 0.5322
6   22  1   3   3  -1  -1 0.3890 -0.0329 0.6286 0.7399 0.5596 -0.0090 0.0169 0.5322
7  211  1   5   5  -1  -1 -0.2382 -0.0779 0.2085 0.3546 0.5596 -0.0090 0.0169 0.5322
8 -211  1   5   5  -1  -1 0.0137 -0.1406 0.8147 0.8385 0.5596 -0.0090 0.0169 0.5322
9 -431  2   2   2  11  12 -0.1946 -0.0838 3.2330 3.7911 0.0000 0.0000 0.0000 0.0000
10  111  2   2   2  22  23 0.2978 -0.1098 0.4794 0.5906 0.0000 0.0000 0.0000 0.0000
11  331  2   9   9  13  15 0.0849 0.2089 0.6670 1.1896 0.1595 -0.0082 -0.0035
0.1361
12 -211  1   9   9  -1  -1 -0.2796 -0.2927 2.5660 2.6015 0.1595 -0.0082 -0.0035 0.1361
13  111  2  11  11  16  17 0.0688 0.1769 0.3666 0.4343 0.1595 -0.0082 -0.0035
0.1361
14  111  2  11  11  18  19 0.0061 0.0425 0.0925 0.1691 0.1595 -0.0082 -0.0035
0.1361
15  221  2  11  11  20  21 0.0101 -0.0104 0.2079 0.5861 0.1595 -0.0082 -0.0035
0.1361
16   22  1  13  13  -1  -1 0.0887 0.1447 0.3570 0.3953 0.1595 -0.0082 -0.0035 0.1361
17   22  1  13  13  -1  -1 -0.0199 0.0322 0.0096 0.0390 0.1595 -0.0082 -0.0035 0.1361
18   22  1  14  14  -1  -1 -0.0405 0.0659 0.0199 0.0798 0.1595 -0.0082 -0.0035 0.1361
19   22  1  14  14  -1  -1 0.0465 -0.0234 0.0726 0.0893 0.1595 -0.0082 -0.0035 0.1361
20   22  1  15  15  -1  -1 -0.2346 -0.0364 -0.0355 0.2400 0.1595 -0.0082 -0.0035
0.1361
21   22  1  15  15  -1  -1 0.2447 0.0259 0.2434 0.3461 0.1595 -0.0082 -0.0035 0.1361
22   22  1  10  10  -1  -1 0.2973 -0.1216 0.4813 0.5786 0.0000 0.0000 0.0000 0.0000
23   22  1  10  10  -1  -1 0.0005 0.0118 -0.0019 0.0120 0.0000 0.0000 0.0000 0.0000
```

When you calculate the mass of particle 4, it evaluates to 142.266MeV.

The maximum error in mass due to rounding at 4 digits precision is

$\text{err_max} = 0.05 \text{ MeV} * (E + p_x + p_y + p_z) / \sqrt{E^2 - p_x^2 - p_y^2 - p_z^2}$

It is admittedly not very likely that the maximum error is indeed achieved, but it does happen.
