EvtGen Output Rounding Effects

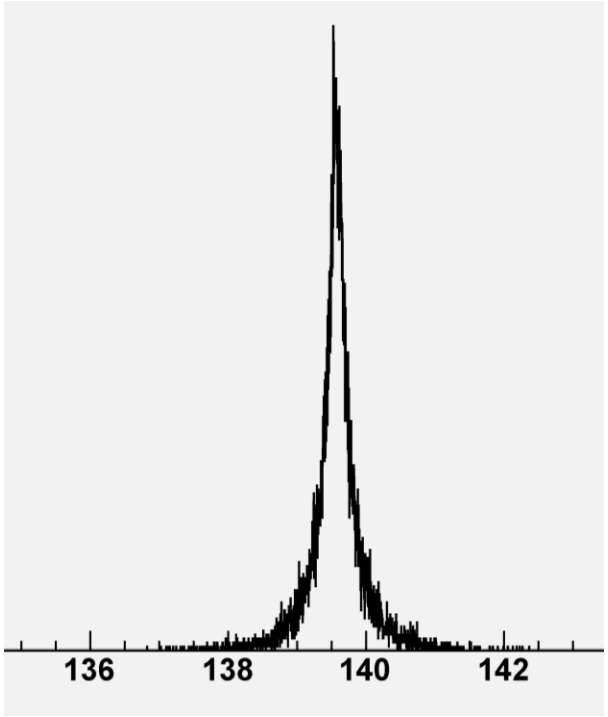
```
0        27
  N       Id Ist   M1   M2   DF   DL      px      py      pz       E       t       x       y       z
  0    88888   2   -1   -1    1    2  0.0001 -0.0000  9.8081 10.7911  0.0000  0.0000  0.0000  0.0000
  1      431   2    0    0    3    5 -0.2764 -0.3370  5.7953  6.1361  0.0000  0.0000 -0.0000  0.0000
  2   -10431   2    0    0   15   16  0.2765  0.3370  4.0128  4.6551  0.0000  0.0000 -0.0000  0.0000
  3      221   2    1    1    6    8 -0.7695  0.3292  2.2399  2.4531  0.6657 -0.0300 -0.0366  0.6287
  4      -13   1    1    1   -1   -1  0.3653 -0.3710  2.9491  2.9966  0.6657 -0.0300 -0.0366  0.6287
  5       14   1    1    1   -1   -1  0.1278 -0.2952  0.6064  0.6864  0.6657 -0.0300 -0.0366  0.6287
...
```

$$m = \sqrt{E^2 - p_x^2 - p_y^2 - p_z^2}$$

$$\Delta m_{\max} = err \cdot \frac{E + p_x + p_y + p_z}{\sqrt{E^2 - p_x^2 - p_y^2 - p_z^2}}$$

$$err = 0.00005\,{}^{GeV}\!/_{c^2} = 50\,{}^{keV}\!/_{c^2}$$

$$\Delta m_{\max} \approx 2\,{}^{MeV}\!/_{c^2}$$



EvtGen Output Rounding Effects

```
0             27
  N       Id Ist   M1   M2   DF   DL        px        py        pz         E         t         x         y         z
  0    88888   2   -1   -1    1    2  0.000100 -0.000000  9.808090 10.791137  0.000000  0.000000  0.000000  0.000000
  1      431   2    0    0    3    4  0.472265 -0.280200  5.519216  5.885464  0.000000  0.000000 -0.000000  0.000000
  2   -10431   2    0    0   11   12 -0.472165  0.280200  4.288874  4.905673  0.000000  0.000000 -0.000000  0.000000
  3      333   2    1    1    5    6  0.466035 -0.068729  2.154387  2.426217  0.545366  0.043762 -0.025964  0.511429
  4      213   2    1    1    7    8  0.006230 -0.211471  3.364829  3.459247  0.545366  0.043762 -0.025964  0.511429
...
```

$$m = \sqrt{E^2 - p_x^2 - p_y^2 - p_z^2}$$

$$\Delta m_{\max} = err \cdot \frac{E + p_x + p_y + p_z}{\sqrt{E^2 - p_x^2 - p_y^2 - p_z^2}}$$

$$err = 0.0000005\,{}^{GeV}\!/_{c^2} = 0.5\,{}^{keV}\!/_{c^2}$$

$$\Delta m_{\max} \approx 0.02\,{}^{MeV}\!/_{c^2}$$