The dilution factor and scaling factor

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The dilution factor, f

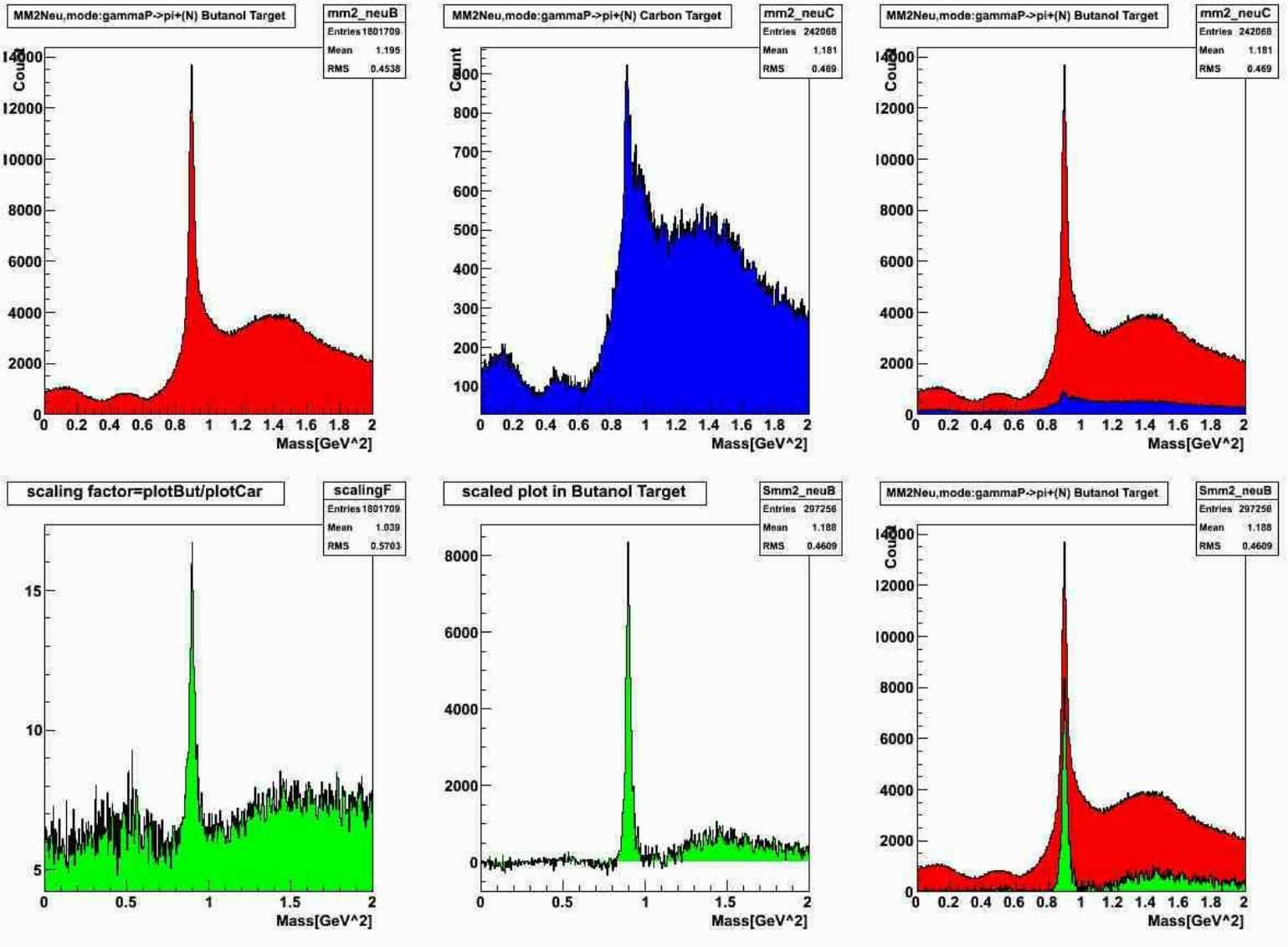
: the ratio of rates from polarized nucleons to all nucleons

The butanol target C_4H_9OH

$$\frac{10}{12\times4+10+16} \simeq 0.14$$

The scaling factor

In the decay mode : $\gamma P \rightarrow \pi + (N)$



The Observable $P_z^{\odot}$

$$P_z^{\odot} = \frac{1}{f}\left\{\frac{(\frac{d\sigma_{3/2}}{d\Omega})_b - (\frac{d\sigma_{1/2}}{d\Omega})_b}{(\frac{d\sigma_{3/2}}{d\Omega})_b + (\frac{d\sigma_{1/2}}{d\Omega})_b}\right\}$$

$$P_z^{\odot} = \frac{\left\{(\frac{d\sigma_{3/2}}{d\Omega})_b - S\times(\frac{d\sigma_{3/2}}{d\Omega})_c\right\} - \left\{(\frac{d\sigma_{1/2}}{d\Omega})_b - S\times(\frac{d\sigma_{1/2}}{d\Omega})_c\right\}}{\left\{(\frac{d\sigma_{3/2}}{d\Omega})_b - S\times(\frac{d\sigma_{3/2}}{d\Omega})_c\right\} + \left\{(\frac{d\sigma_{1/2}}{d\Omega})_b - S\times(\frac{d\sigma_{1/2}}{d\Omega})_c\right\}}$$

$$= \frac{\left\{(\frac{d\sigma_{3/2}}{d\Omega})_b - (\frac{d\sigma_{1/2}}{d\Omega})_b\right\} - S\times\left\{(\frac{d\sigma_{3/2}}{d\Omega})_c - (\frac{d\sigma_{1/2}}{d\Omega})_c\right\}}{\left\{(\frac{d\sigma_{3/2}}{d\Omega})_b + (\frac{d\sigma_{1/2}}{d\Omega})_b\right\} - S\times\left\{(\frac{d\sigma_{3/2}}{d\Omega})_c + (\frac{d\sigma_{1/2}}{d\Omega})_c\right\}}$$

- f - dilution factor
- S - scaling factor

$$(\frac{d\sigma_{3/2}}{d\Omega}) = \frac{d\sigma(\rightarrow\Rightarrow)}{d\Omega} + \frac{d\sigma(\leftarrow\Leftarrow)}{d\Omega}$$

$$(\frac{d\sigma_{1/2}}{d\Omega}) = \frac{d\sigma(\rightarrow\Leftarrow)}{d\Omega} + \frac{d\sigma(\leftarrow\Rightarrow)}{d\Omega}$$