Rough Calculation of $\omega\gamma$ for $^{21}Ne(p,\gamma)$

Step 1 : Find EMØ response, k

$$k = \frac{\text{beam ions}}{\text{EMØ count}} = \ldots \frac{Q_{4+}^{FCM2}}{4eN_{4+}^{EMØ}} + \frac{Q_{5+}^{FCM2}}{5eN_{5+}^{EMØ}} \ldots$$

$$= 3.516 \times 10^{7}$$

Step 2 : Calculate partial yields

$$y_{3+} = \frac{N_{3+}^{DSSSD}}{k N_{3+}^{EMØ}}$$

$$Y = \ldots y_3 + y_4 + y_5 \ldots$$

Step 3 : Calculate energy loss in target

$$\Delta E = \varepsilon N^{+} g^{+}$$

$$N^{+} g^{+} = \frac{2 \times (6 \times 10^{23})}{22400\, cm^{3}} \cdot \frac{P}{760} \cdot \frac{273}{T} \cdot L_{eff}$$

$$\Delta E = 15\ keV/u$$

$$\omega\gamma = \frac{2y}{\lambda^2} \frac{M}{M+m} \varepsilon$$

Where:

$$\lambda^2 = 33 \times 10^{-24}\ cm^2$$

$$M = 1 \qquad m = 21$$

$$\varepsilon = 8.858 \times 10^{-14}\ \frac{eV \cdot cm^2}{atom}$$

$$y = 6.5 \times 10^{-10}$$

$$\underline{\underline{\omega\gamma = 159\ meV}}$$