

40. In Fig. 44-11, let  $Q_1 = 0.42 \text{ MeV}$ ,  $Q_2 = 1.02 \text{ MeV}$ ,  $Q_3 = 5.49 \text{ MeV}$  and  $Q_4 = 12.86 \text{ MeV}$ . For the overall proton-proton cycle

$$\begin{aligned} Q &= 2Q_1 + 2Q_2 + 2Q_3 + Q_4 \\ &= 2(0.42 \text{ MeV} + 1.02 \text{ MeV} + 5.49 \text{ MeV}) + 12.86 \text{ MeV} = 26.7 \text{ MeV} . \end{aligned}$$