Graphs of separation and decay energies

Figs. 1–9. $S_2^n$ two-neutron separation energies.

Figs. 10–17. $S_2^p$ two-proton separation energies.

Figs. 18–26. $Q_{\alpha}$ $\alpha$-decay energies.

Figs. 27–36. $Q_{\beta\beta}$ double $\beta$-decay energies.

Points represent experimental values.

Mass numbers and element symbols are indicated only along the borders of the graphs; those for the intermediate points must be derived by enumeration.

Lines connect points for isotopes (or isotones). Open circles represent values estimated from systematic trends.

Other types of graphs are available from the A MDC web-site (see text).
Fig. 1. Two-neutron separation energies $N = 0$ to $25$
Fig. 2. Two-neutron separation energies $N = 22$ to $45$
Fig. 3. Two-neutron separation energies $N = 42$ to $65$
Fig. 4. Two-neutron separation energies $N = 62$ to $85$
Fig. 5. Two-neutron separation energies $N = 82$ to 105

![Diagram showing two-neutron separation energies for $N = 82$ to 105](image-url)
Fig. 6. Two-neutron separation energies $N = 102$ to $125$
Fig. 7. Two-neutron separation energies $N = 122$ to 145

![Graph showing two-neutron separation energies for various neutron numbers from 122 to 145.](image-url)
Fig. 8. Two-neutron separation energies $N = 142$ to $165$
Fig. 9. Two-neutron separation energies \( N = 155 \) to 178
Fig. 10. Two-proton separation energies $Z = 0$ to $20$
Fig. 11. Two-proton separation energies $Z = 17$ to $35$
Fig. 12. Two-proton separation energies $Z = 32$ to $50$

![Diagram showing two-proton separation energies for elements with $Z = 32$ to $50$.]
Fig. 13. Two-proton separation energies $Z = 47$ to $65$
Fig. 14. Two-proton separation energies $Z = 62$ to $80$
Fig. 15. Two-proton separation energies $Z = 77$ to $95$
Fig. 16. Two-proton separation energies $Z = 92$ to $110$

Proton number $Z$

Two-proton separation energies $S_{2p}$ (MeV)
Fig. 17. Two-proton separation energies $Z = 100$ to $118$
Fig. 18. α-decay energies

$N = 0$ to $25$

Neutron number $N$

$Q_\alpha$ (MeV)

-25 -20 -15 -10 -5 0 5 10 15 20 25

-25 -20 -15 -10 -5 0 5 10 15 20 25

$^5$Li, $^7$Be, $^7$Be, $^9$C, $^{10}$N, $^{14}$F, $^{16}$O, $^{20}$C, $^{23}$Ne, $^{26}$O, $^{29}$F, $^{32}$Ne, $^{35}$Na, $^{37}$Mg, $^{38}$Al, $^{40}$P, $^{42}$P, $^{46}$Fe, $^{54}$Cu, $^{55}$Zn, $^{56}$Fe
Fig. 19. $\alpha$-decay energies $N = 22$ to 45
Fig. 20. α-decay energies

$N = 42$ to $65$
Fig. 21. α-decay energies

$N = 62$ to $85$

Neutron number $N$

$Q_\alpha$ (MeV)
Fig. 22. $\alpha$-decay energies

$N = 82$ to $105$

Neutron number $N$
Fig. 23. $\alpha$-decay energies

$N = 102$ to $125$
Fig. 24. α-decay energies

Neutron number $N = 122$ to $145$
Fig. 25. $\alpha$-decay energies

$N = 142$ to $165$

$Q_\alpha$ (MeV)

Neutron number $N$
Fig. 26. $\alpha$-decay energies $N = 157$ to $178$
Fig. 27. Double $\beta$-decay energies

$A = 0$ to $35$

$Q_{\beta\beta}$ (MeV)

Mass number $A$
Fig. 28. Double $\beta$-decay energies  $A = 32$ to $65$
Fig. 29. Double $\beta$-decay energies \( A = 62 \text{ to } 95 \)

![Graph showing double $\beta$-decay energies for mass numbers 62 to 95.](image-url)
Fig. 30. Double $\beta$-decay energies $A = 92$ to $125$
Fig. 31. Double $\beta$-decay energies $A = 122$ to $155$
Fig. 32. Double $\beta$-decay energies $A = 152$ to $185$
Fig. 33. Double $\beta$-decay energies $A = 182$ to $215$
Fig. 34. Double $\beta$-decay energies $A = 212$ to 245
Fig. 35. Double $\beta$-decay energies $A = 242$ to $275$

$Q_{\beta\beta}$ (MeV) vs. Mass number $A$
Fig. 36. Double $\beta$-decay energies $A = 257$ to $290$