

Heatmap showing the correlation matrix for the seven variables: A, Z, N, Shell_Closure, N_Z_excess, N_to_Z_ratio, and S(2n)_MeV. The diagonal elements are all 1.00. The off-diagonal elements show varying degrees of correlation, with N_Z_excess showing the highest correlation with N_to_Z_ratio (0.89).

	A	Z	N	Shell_Closure	N_Z_excess	N_to_Z_ratio	S(2n)_MeV
A	1.00	0.99	1.00	-0.17	0.89	0.10	0.21
Z	0.99	1.00	0.99	0.17	-0.89	-0.10	-0.21
N	1.00	0.99	1.00	-0.17	0.89	0.10	0.21
Shell_Closure	-0.17	0.17	-0.17	1.00	0.17	-0.10	-0.21
N_Z_excess	0.89	-0.89	0.89	0.17	1.00	0.89	0.10
N_to_Z_ratio	0.10	-0.10	0.10	-0.10	0.89	1.00	0.21
S(2n)_MeV	0.21	-0.21	0.21	-0.21	0.10	0.21	1.00

