

Appendix H Properties of Several Nuclei

Isotope	NMR Frequency MHz for a 1-T Field	Natural Abundance %	Relative Sensitivity at Constant Field	Magnetic Moment (μ)	Spin Number (I)	Electrical Quadrupole Moment ($e \times 10^{-24} \text{ cm}^2$)	Magnetogyric Ratio ^a γ ($10^7 \text{ rad T}^{-1}\text{s}^{-1}$)
¹ H	42.576	99.9844	1.000	2.79268	$\frac{1}{2}$		26,753
² H	6.5357	1.56×10^{-2}	9.64×10^{-3}	0.85739	1	2.77×10^{-3}	4,107
³ H	45.414		1.21	2.9788	$\frac{1}{2}$		
¹⁰ B	4.575	18.83	1.99×10^{-2}	1.8005	3	7.4×10^{-2}	
¹¹ B	13.660	81.17	0.165	2.6880	$\frac{3}{2}$	3.55×10^{-2}	
¹² C		98.9			0		
¹³ C	10.705	1.108	1.59×10^{-2}	0.70220	$\frac{1}{2}$		6,728
¹⁴ N	3.076	99.635	1.01×10^{-3}	0.40358	1	7.1×10^{-2}	
¹⁵ N	4.315	0.365	1.04×10^{-3}	-0.28304	$\frac{1}{2}$		-2,712
¹⁶ O		99.76			0		
¹⁷ O	5.772	3.7×10^{-2}	2.91×10^{-2}	-1.8930	$\frac{5}{2}$	-4.0×10^{-3}	-3,628
¹⁹ F	40.055	100	0.834	2.6273	$\frac{1}{2}$		25,179
²⁸ Si		92.28			0		
²⁹ Si	8.458	4.70	7.85×10^{-3}	-0.55548	$\frac{1}{2}$		-5,319
³⁰ Si		3.02			0		
³¹ P	17.236	100	6.64×10^{-2}	1.1305	$\frac{1}{2}$		10,840
³² S		95.06			0		
³³ S	3.266	0.74	2.26×10^{-3}	0.64274	$\frac{3}{2}$	-0.053	2,054
³⁴ S		4.2			0		
³⁵ Cl	4.172	75.4	4.71×10^{-3}	0.82091	$\frac{3}{2}$	-7.9×10^{-2}	2,624
³⁷ Cl	3.472	24.6	2.72×10^{-3}	0.68330	$\frac{3}{2}$	-6.21×10^{-2}	2,184
⁷⁹ Br	10.667	50.57	7.86×10^{-2}	2.0991	$\frac{3}{2}$	0.34	
⁸¹ Br	11.499	49.43	9.84×10^{-2}	2.2626	$\frac{3}{2}$	0.28	
¹²⁷ I	8.519	100	9.35×10^{-2}	2.7937	$\frac{5}{2}$	-0.75	

^aT = Tesla.

Source: Varian Associates NMR Table, 4th ed., 1964, with permission.