1.3 Multiplettstruktur

Schubkastenprinzip: k Elektronen in n Zustände

$$\frac{n(n-1)\cdots(n-(k-1))}{k!} = \frac{n!}{(n-k)!\,k!} = \binom{n}{k}$$

$[\Delta, \vec{l}\,] = 0$ $\quad \frac{1}{\hbar}\vec{l} = \vec{r} \times \frac{\vec{p}}{\hbar} = \frac{1}{i}\vec{r} \times \nabla$ $\quad\Big|\quad \nabla \frac{1}{r} = -\frac{\vec{r}}{r^3}$

$[V(r), \vec{l}\,] = 0$

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m_1	m_{s_1}	m_2	m_{s_2}	M	M_S	
1	$\frac{1}{2}$	1	$-\frac{1}{2}$	2	0	
		0	$\frac{1}{2}$	1	1	^1D
		0	$-\frac{1}{2}$	1	0	
		-1	$\frac{1}{2}$	0	1	^3P
		-1	$-\frac{1}{2}$	0	0	
1	$-\frac{1}{2}$	0	$\frac{1}{2}$	1	0	
		-1	$\frac{1}{2}$	0	0	^1S
0	$\frac{1}{2}$	0	$-\frac{1}{2}$	0	0	

⋮