

	L^2	L_x	L_y	L_z	S^2	S_x	S_y	S_z	J^2	J_x	J_y	J_z	π
$p^4 H_n$	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
$\vec{L} \vec{S} H_{SO}$	✓	x	x	x	✓	x	x	x	✓	✓	✓	✓	✓
$S^{3/2} H_D$	✓	✓	—	—	✓	✓	—	✓	✓	✓	✓	x	
$L+2S$ $2 \cdot 2 \cdot Z$	✓	x	x	✓	✓	x	x	✓	x	x	✓	✓	✓