

$$\hat{H} = \sum_i^N \frac{\hat{\mathbf{p}}^2}{2m_e} + \sum_i^N V_{\text{r}}(\vec{r}_i) + \sum_{i>j}^N \frac{e^2}{|\vec{r}_j - \vec{r}_i|} + \sum_i^N V_{\text{CF}}(\vec{r}_i) + \alpha_T L(L+1) + \sum_i^N \zeta(r) \hat{l}_i \cdot \hat{s}_i$$