

$$\begin{aligned}
\hat{H}(r, R) = & -\frac{1}{2} \sum_{i=1}^N \nabla_i^2 - \frac{1}{2} \sum_{I=1}^M \frac{1}{A_I} \nabla_I^2 + \sum_{i=1}^N \sum_{j>i}^N \frac{1}{|r_i - r_j|} \\
& - \sum_{i=1}^N \sum_{I=1}^M \frac{Z_I}{|r_i - R_I|} + \sum_{I=1}^M \sum_{J>I}^M \frac{Z_I Z_J}{|R_I - R_J|}
\end{aligned}$$