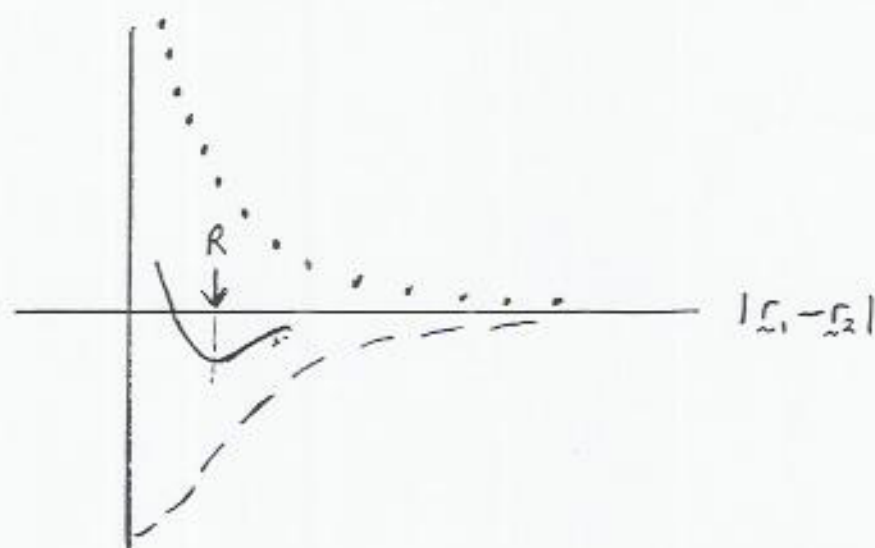


Minimizing E_1 with respect to A and B gives two solutions.

$$\psi_{\pm}(\mathbf{r}) = N_{\pm}(\psi_0(\mathbf{r} - \mathbf{r}_1) \pm \psi_0(\mathbf{r} - \mathbf{r}_2))$$

The correct one here is ψ_+ , for that allows the electron more scope to be located between the protons and so attract them to each other. The corresponding energy E_+ as a function of proton separation is shown as a dashed line below. The final energy must have added to it the proton-proton repulsion form, shown as a dotted line. The sum of the two is the estimated net energy of the system, shown as a full line.



Since the latter has a minimum the model predicts binding for the system at a proton-proton separation R . Better trial functions give predictions which agree better with experiment.