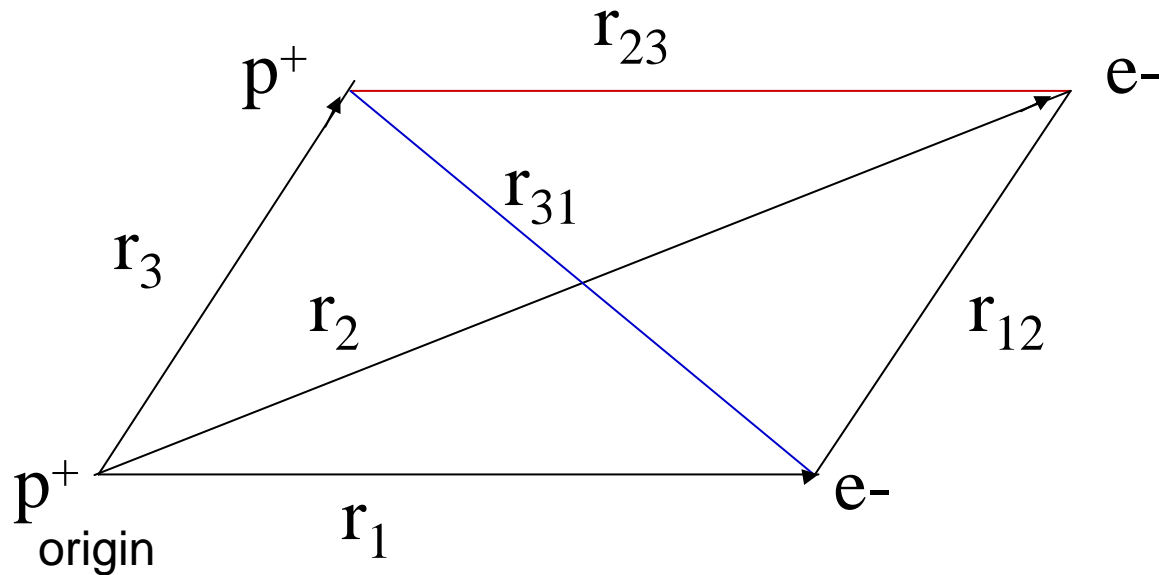


Four-body integral

$$\int d\mathbf{r}_1 d\mathbf{r}_2 d\mathbf{r}_3 r_1^{j_1} r_2^{j_2} r_3^{j_3} r_{12}^{j_{12}} r_{23}^{j_{23}} r_{31}^{j_{31}} \times$$

$$\exp\left(-\alpha_1 r_1 - \alpha_2 r_2 - \alpha_3 r_3 - \alpha_{12} r_{12} - \alpha_{23} r_{23} - \alpha_{31} r_{31}\right)$$



Bound state channels:

$$r_{23}^{j_{23}} \exp(-\alpha_{23} r_{23})$$

$$r_{31}^{j_{31}} \exp(-\alpha_{31} r_{31})$$

Two center molecules: H_2 , PsH , Ps_2 , HeH^+ , $\text{H}\bar{\text{H}}$