

⑥

$$\omega 2 \phi_i = 2 \omega^2 \phi_i - 1 = 2 \frac{r_{ij}^2}{\rho^2} - 1$$

$$P_1^{1/2, 1/2}(x) = \frac{3}{2} x$$

$$\sum_{i=1,3} P_1^{1/2, 1/2}(x_i) = \sum_i \frac{3}{2} x_i = -3 + \frac{2}{\rho^2} (r_{12}^2 + r_{23}^2 + r_{31}^2)$$

$$\text{but } \rho^2 = \frac{2}{A} \sum r_{ij}^2 = \frac{2}{A=3} (r_{12}^2 + r_{23}^2 + r_{31}^2)$$

$$\Rightarrow \sum_{i=1,3} P_1^{1/2, 1/2}(x_i) = 0$$

Then, the wave function for 3-bosons with $L=0$

$$\gamma_3^{0+} = \sum_{\alpha m} u_{\alpha m}^{\alpha}(\rho) B_{\alpha m}^{0+}(\omega) \quad \begin{array}{l} m=0, 2, 3, \dots \\ \text{for } \alpha=0 \end{array}$$