Miscellaneous formulas

$$\varphi_a(\mathbf{r}) = \bar{N}_a^{-1/2} \chi(\mathbf{r} \in V_a) \tag{1}$$

$$x_{a} = \int d^{3}r \ \varphi_{a}(\mathbf{r})[n(\mathbf{r}) - \bar{n}(\mathbf{r})] = \bar{N}_{a}^{-1/2}(N_{a} - \bar{N}_{a})$$

$$\langle x_{a} \rangle = 0$$

$$\langle x_{a} \rangle = C_{ab} = S_{ab} + N_{ab}$$

$$N_{ab} = \delta_{ab}$$

$$(2)$$

$$(3)$$

$$(4)$$

$$(5)$$

$$\langle x_a \rangle = 0 \tag{3}$$

$$\langle x_a x_b \rangle = C_{ab} = S_{ab} + N_{ab} \tag{4}$$

$$V_{ab} = \delta_{ab} \tag{5}$$

$$S_{ab} = \int d^3r_1 \ d^3r_2 \ \bar{n}(\mathbf{r}_1)\bar{n}(\mathbf{r}_2)\varphi_a(\mathbf{r}_1)\varphi_b(\mathbf{r}_2)\xi(\mathbf{r}_1,\mathbf{r}_2) = \bar{N}_a^{1/2}\bar{N}_b^{1/2} \int_{V_a} \frac{d^3r_1}{V_a} \int_{V_b} \frac{d^3r_2}{V_b} \ \xi(\mathbf{r}_1,\mathbf{r}_2)$$

$$(6)$$

$$y_{i} = \sum_{a} B_{ia} x_{a}$$

$$\langle y_{i} \rangle = 0$$

$$\langle y_{i} y_{j} \rangle = C_{ij} = \delta_{ij} (1 + \lambda_{i})$$

$$(8)$$

$$(9)$$

$$\langle y_i \rangle = 0 \tag{8}$$

$$\langle y_i y_j \rangle = C_{ij} = \delta_{ij} (1 + \lambda_i) \tag{9}$$

(10)