

$$\mathcal{Z} = \int \mathcal{D}n_{\alpha}(\mathbf{r}) \, \delta \left(\sum_{\alpha=1}^6 n_{\alpha}^2(\mathbf{r}) - 1 \right) \exp \left(- \frac{\rho_s}{2T} \int d^2r \left[\sum_{\alpha=1}^2 (\nabla n_{\alpha})^2 \right. \right. \\ \left. \left. + \lambda \sum_{\alpha=3}^6 (\nabla n_{\alpha})^2 \right. \right. \\ \left. \left. + g \sum_{\alpha=3}^6 n_{\alpha}^2 \right. \right. \\ \left. \left. + w \left[(n_3^2 + n_4^2)^2 + (n_5^2 + n_6^2)^2 \right] \right] \right).$$