

$$H_{\text{int}} = \frac{J\Delta}{4} \sum_n \sigma_n^z \sigma_{n+1}^z + \frac{J}{8} \sum_n (\sigma_n^+ \sigma_{n+1}^- + \sigma_n^- \sigma_{n+1}^+)$$

Strong anisotropy: $\Delta \gg 1$

NON-RESONANT DEFECT :

$$g < J\Delta$$

ONE DEFECT AT n_0

Localized BOUND PAIRS:
one excitation on the defect

