1343 9 site square

eigenstates of trimer:

$\frac{1}{\sqrt{2}}(1,0,-1)$, $\left(\pm\frac{1}{2}, \frac{1}{\sqrt{2}}, \pm\frac{1}{2}\right)$ $\quad \epsilon = 0, \pm\sqrt{2}$

1/4	$\pm 1/2\sqrt{2}$	1/4
$\pm 1/2\sqrt{2}$	1/2	$\pm 1/2\sqrt{2}$
1/4	$\pm 1/2\sqrt{2}$	1/4

$-\frac{1}{2\sqrt{2}}$	0	$-\frac{1}{2\sqrt{2}}$
0	1/2	0
$-\frac{1}{2\sqrt{2}}$	0	$-\frac{1}{2\sqrt{2}}$

eigenstates $|n_x\, n_y\rangle$

$\psi = |x=y=0\rangle$

$$|\psi\rangle = \frac{1}{2}|1,1\rangle + \frac{1}{2}|3,3\rangle + \frac{1}{\sqrt{2}}|1,3\rangle_s$$

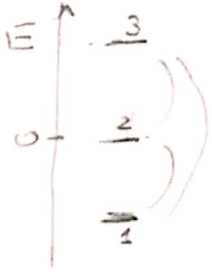
$\epsilon = 2\sqrt{2}$ $\quad \epsilon = -2\sqrt{2}$ $\quad \epsilon = 0$

$$|\langle\psi|\psi t\rangle|^2 = \left|\frac{1}{2}[\cos(\omega t) + 1]\right|^2 \qquad \omega = 2\sqrt{2}$$

with u potential at $x=y=0$

$$U_{1,3} = 1/4\, u$$

$$U_{1,2} = 1/2\sqrt{2}\, u$$



$$\pm\Delta E^{(2)}_{1,3} = \frac{|U_{1,2}|^2}{2\sqrt{2}} + \frac{|U_{1,3}|^2}{4\sqrt{2}} = \frac{5}{2^6\sqrt{2}}u^2$$

$$\Delta E^{(1)}_{1,3} = \frac{1}{4}u$$

$$\Delta E^{(1)}_{2} = \frac{1}{2}u$$