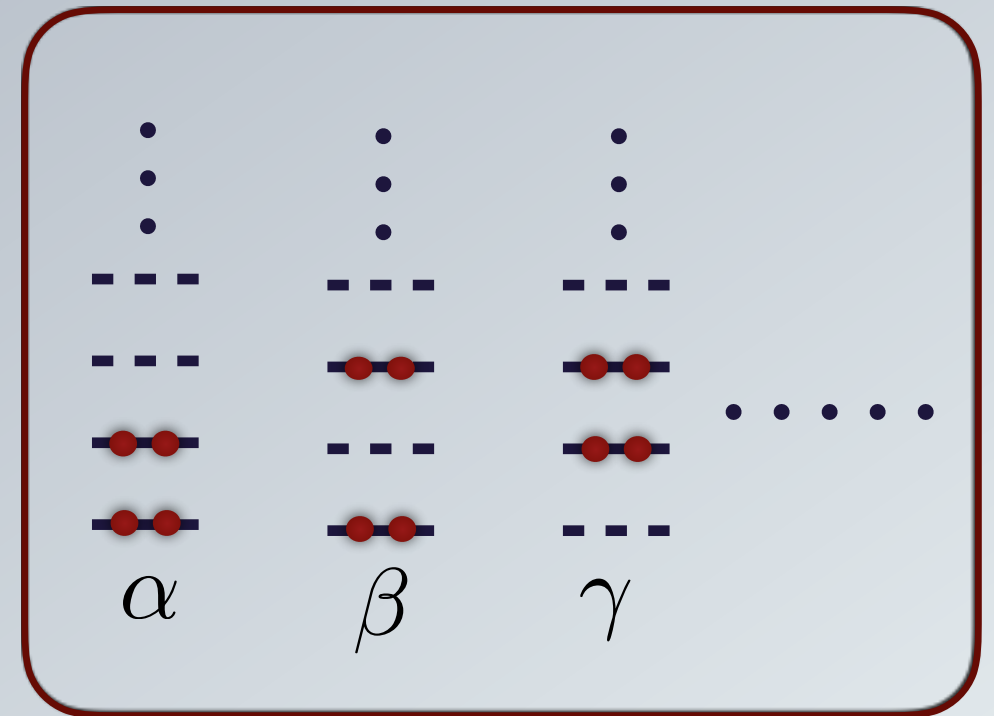
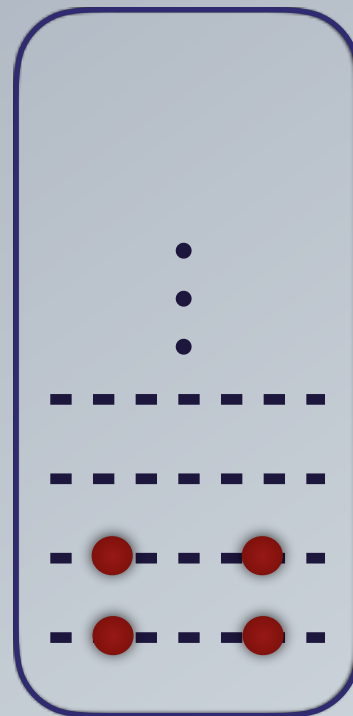


Basic idea:

# Group No.5



i) basis



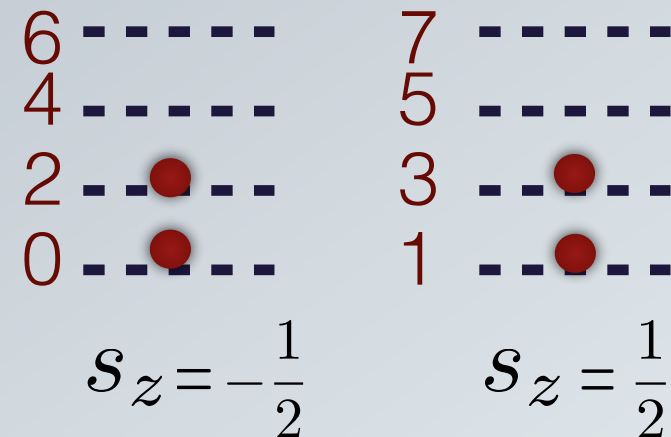
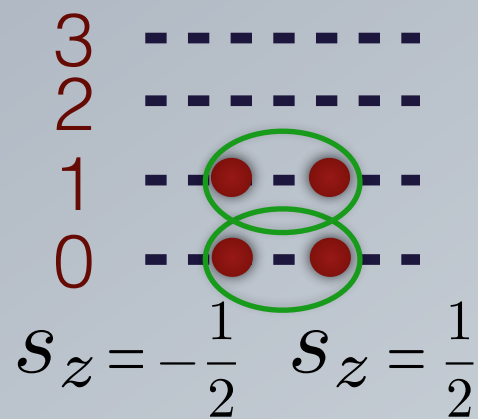
ii) Hamiltonian

$\mathcal{H} =$

$$\begin{matrix} H_{\alpha\alpha} & H_{\alpha\beta} & H_{\alpha\gamma} & \dots \\ H_{\beta\alpha} & H_{\beta\beta} & H_{\beta\gamma} & \dots \\ H_{\gamma\alpha} & H_{\gamma\beta} & H_{\gamma\gamma} & \dots \\ \vdots & \vdots & \vdots & \ddots \end{matrix}$$

iii) Diagonalization

# Different strategies:



C++ vs Python

Windows vs Linux vs MacOS



# Configuration & Hamiltonian:

**step 1:**

2p2h

0 h : (0, 1) p : (4, 5)

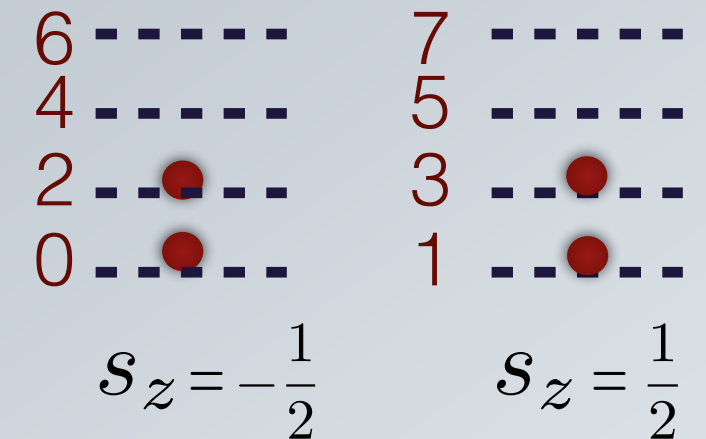
1 h : (0, 1) p : (6, 7)

2 h : (2, 3) p : (4, 5)

3 h : (2, 3) p : (6, 7)

4p4h

0 h : (0, 1, 2, 3) p : (4, 5, 6, 7)



**step 2:**

0p0h: 11110000

2p2h: 00111100, 00110011...

4p4h: 00001111

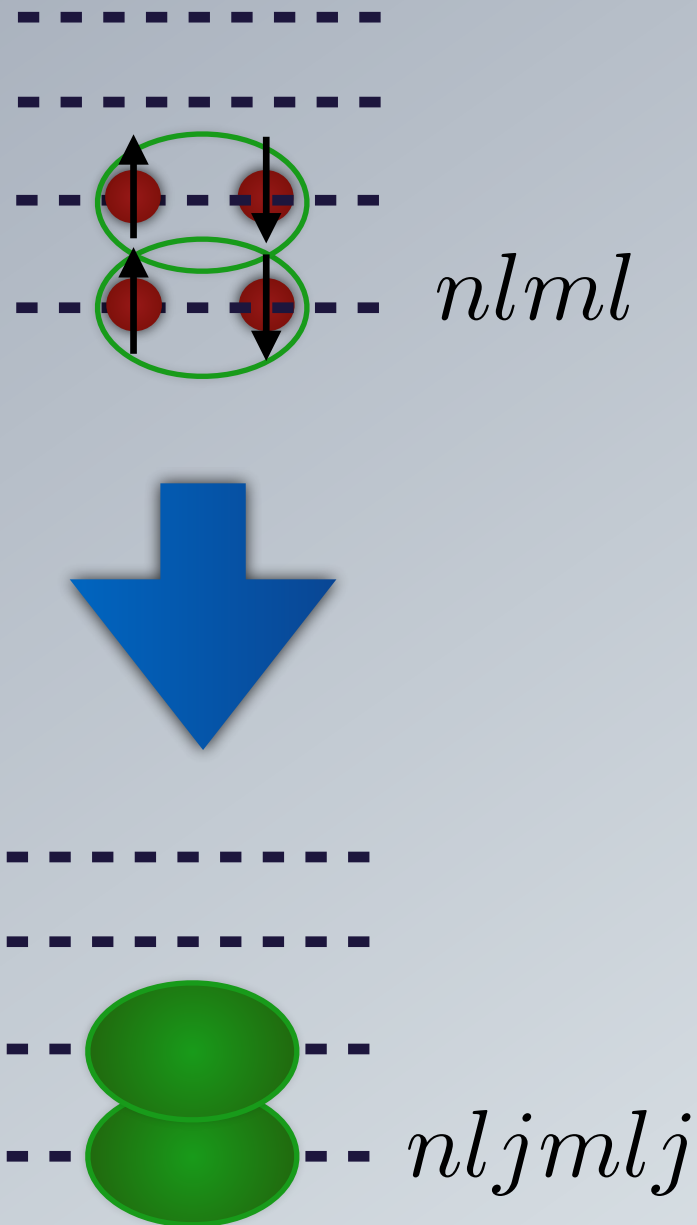
**step 3:**

$$\langle SD | \mathcal{H} | SD \rangle = \sum_{i \in SD} \epsilon_i - n_{pair} \times G$$

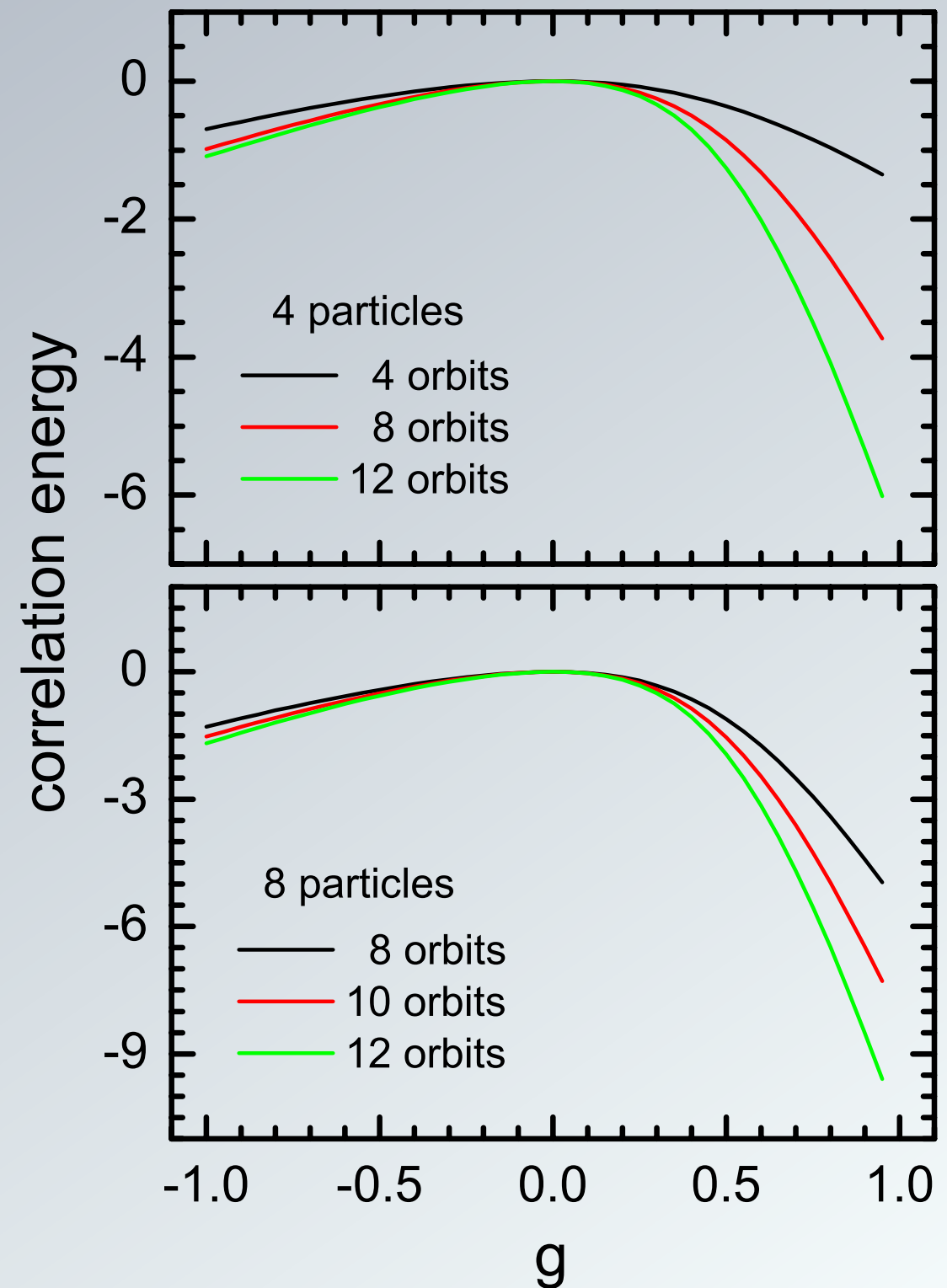
$$\langle SD | \mathcal{H} | SD_{jl}^{ik} \rangle = -G$$

$$\begin{array}{cccc} H_{\alpha\alpha} & H_{\alpha\beta} & H_{\alpha\gamma} & \dots \\ H_{\beta\alpha} & H_{\beta\beta} & H_{\beta\gamma} & \dots \\ H_{\gamma\alpha} & H_{\gamma\beta} & H_{\gamma\gamma} & \dots \\ \vdots & \vdots & \vdots & \ddots \end{array}$$

# Configuration & Hamiltonian:



NO truncation in pair ex. number



# Thank you!

## Group No.5

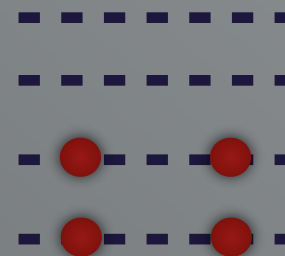
YIYUAN CHEN

ADAM VERNON

YUANZHUO MA



# Group No.5



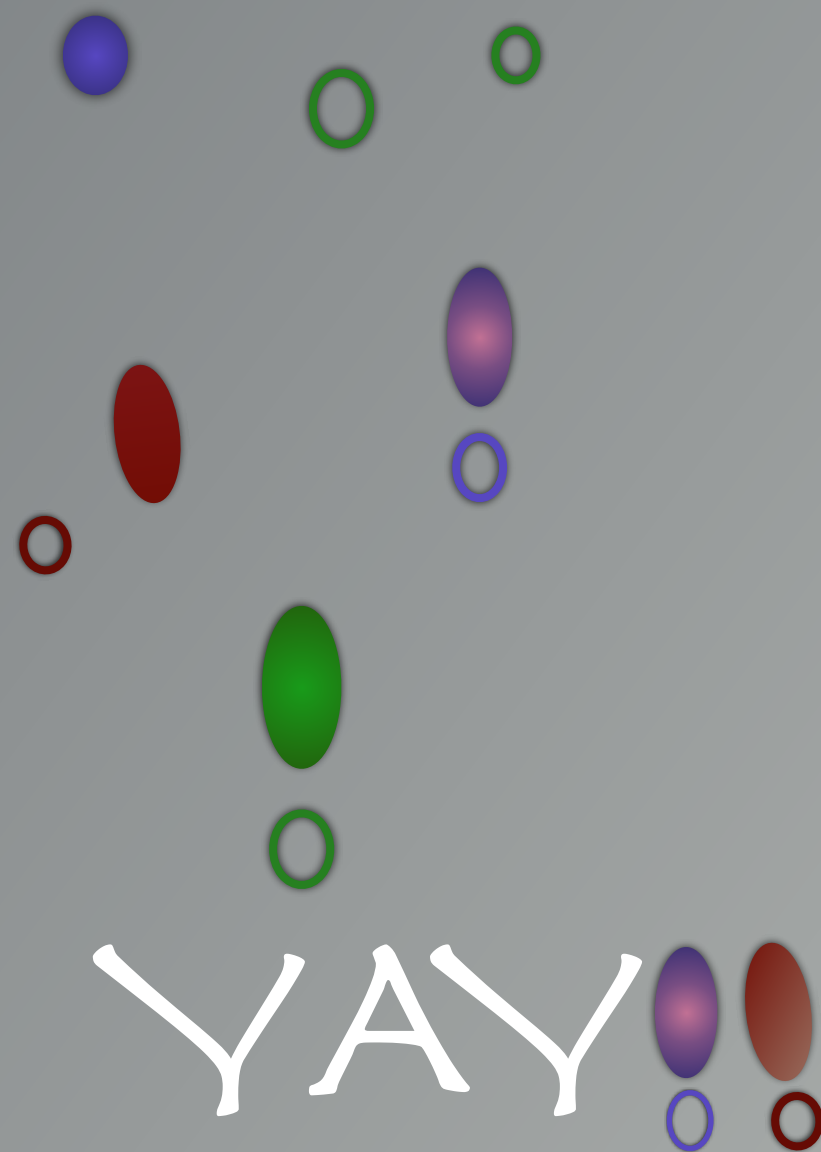
YAY

YAY

YAY

YAY

YAY





The word "YAY" is written in a large, white, stylized font. The first 'Y' has a solid red dot at its top left. The second 'Y' has a red ring at its top right. The 'A' has a green ring at its top right. The third 'Y' has a solid green dot at its top right.

YAY

