

Hamiltonian $A[I, J]$ $I, J = 1 \dots N$

↳ after diagonalization:

$R[I]$, $I = 1 \dots N$: eigenvalues

$A[I, J]$, $I, J = 1 \dots N$: eigenvectors

$R[1] < \dots < R[J] < \dots < R[N]$ ← eigenvalues

↓

↓

↓

$$\left[\begin{array}{ccc} A[1,1] & \dots & A[1,N] \\ \vdots & & \vdots \\ A[I,1] & \dots & A[I,N] \\ \vdots & & \vdots \\ A[N,1] & \dots & A[N,N] \end{array} \right] \begin{array}{l} \rightarrow \text{local DOS on site 1} \\ \\ \rightarrow \text{local DOS on site I} \\ \\ \rightarrow \text{local DOS on site N} \end{array}$$

↓

↓

eigenvector
no. 1

eigenvector
no. J

eigenvector
no. N