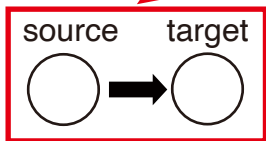


# [[hamiltonian]]

$$\mathcal{H} = \sum_{i,j} \mathcal{H}_{ij}$$

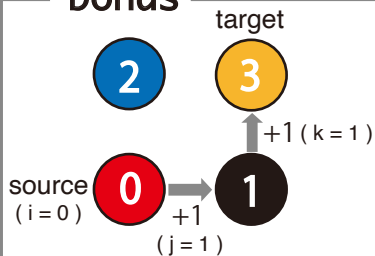
Bond Hamiltonian



dim = [2, 2]

both source and target take two states; spin-up and spin-down

## bonds



bonds = ""

i j k

i : Index of source site

j : Amount of movement from source site to +x direction.

k : Amount of movement from source site to +y direction.

target site



bonds = ""

1 0 1 ← source is 1, target is 3

⋮

""

elements = ""

0 1 1 0 0.5 0.0 →

⋮

""

$\langle 10 | \mathcal{H}_b | 01 \rangle$  s : source, t : target

=  $\underbrace{s \langle \downarrow |}_{\text{final state}} \otimes \underbrace{t \langle \uparrow | \mathcal{H}_b | \uparrow \rangle_s}_{\text{initial state}} \otimes | \downarrow \rangle_t$

= 0.5 + 0 i

Real Imaginary