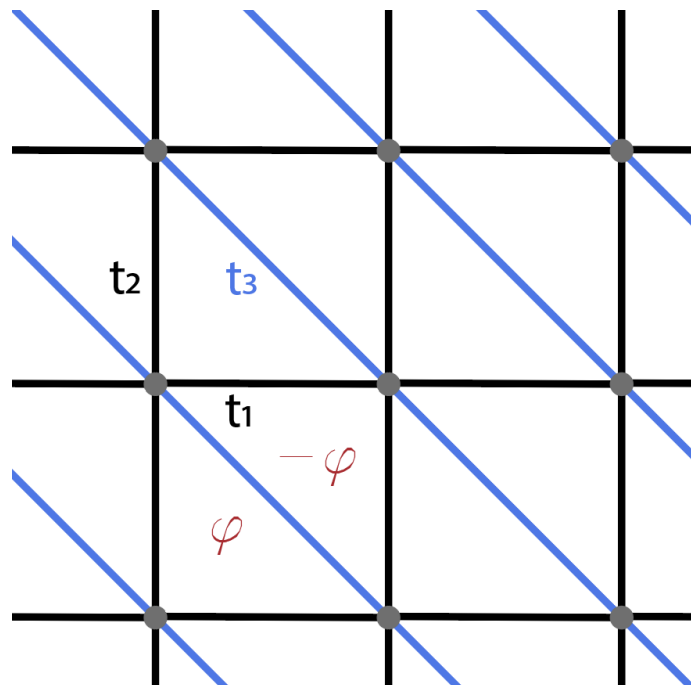
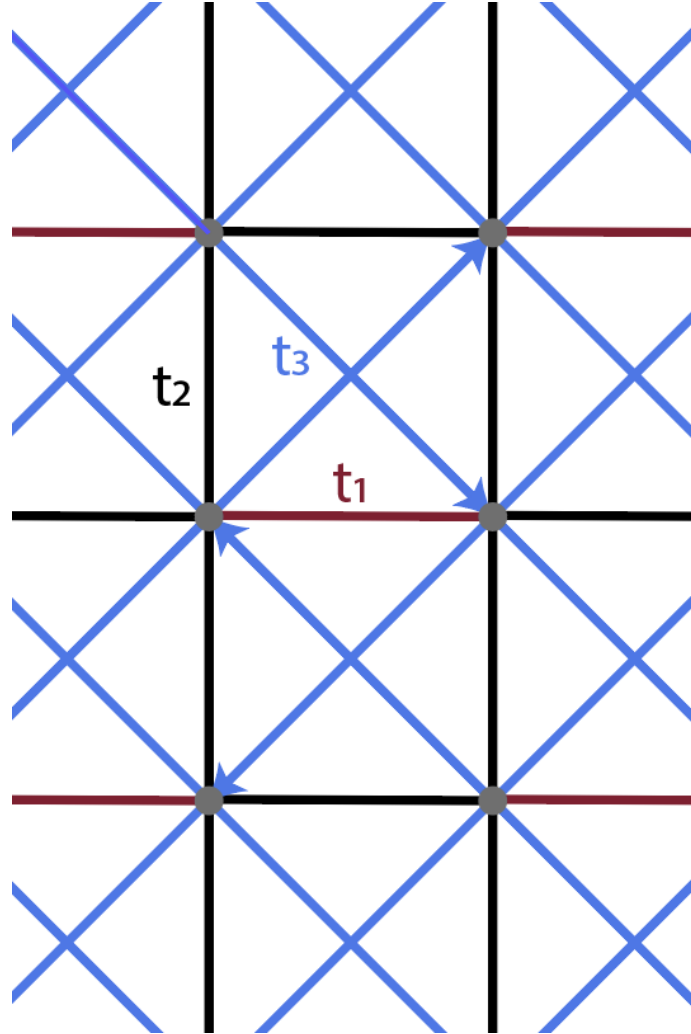


## 1 Lattice



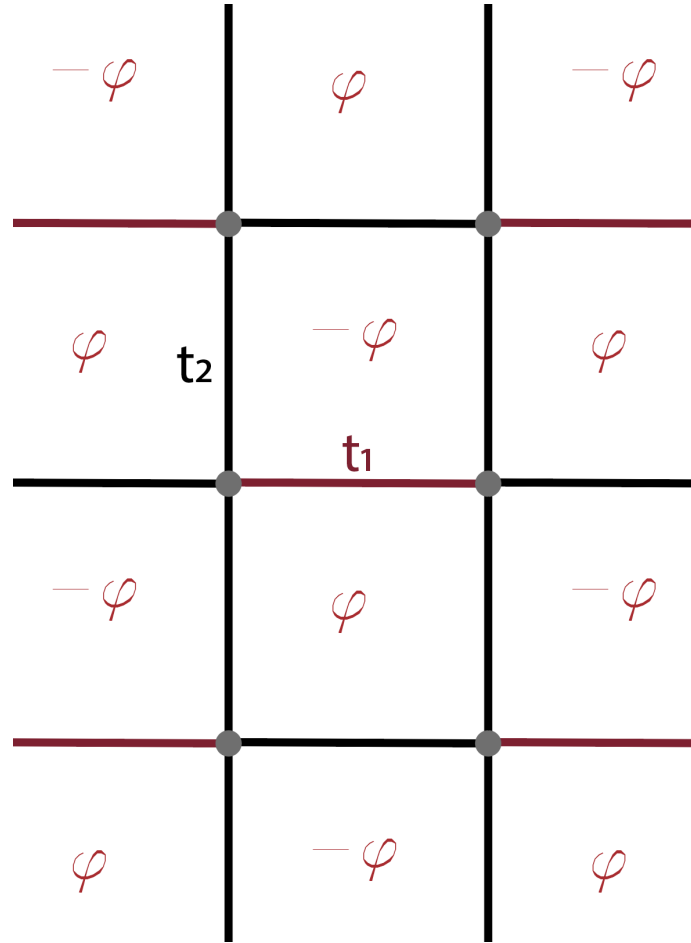
- Consider this lattice in 2D momentum space
- $t_1 = t_2 = 1$  and  $t_3$  varies from 0 to 2
- The staggered flux  $\varphi$  varies from 0 to  $2\pi$
- Examine the density of states, band structure and Berry phase/curvature

## 2 Lattice



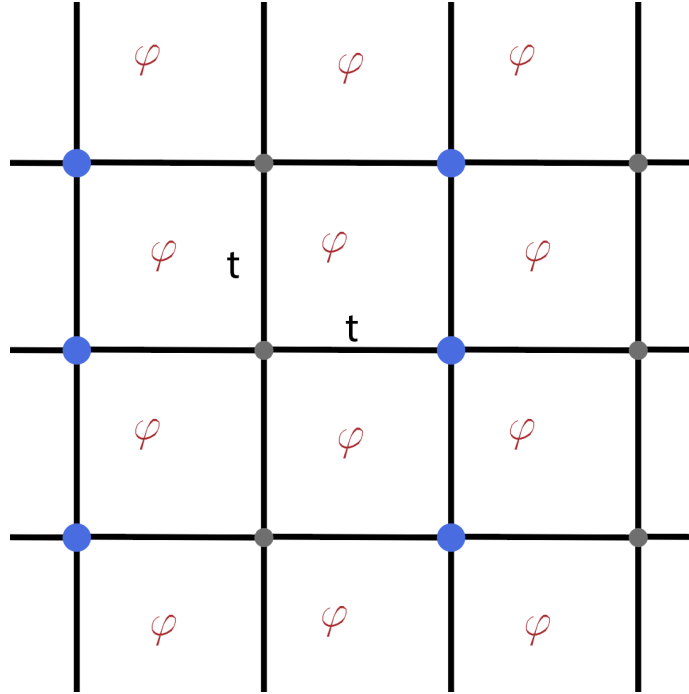
- Consider this lattice in 2D momentum space
- $t_3$  is purely imaginary with the phase defined along the arrow direction
- $t_2 = 1$ ,  $t_1$  varies from 0 to 2 and the magnitude of  $t_3$  varies from 0 to 0.1.
- Examine the density of states, band structure and Berry phase/curvature

### 3 Lattice



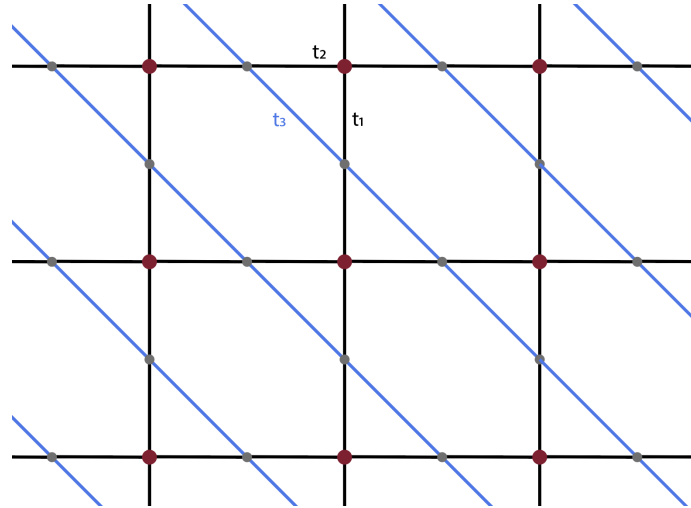
- Consider this lattice in 2D momentum space
- $t_2 = 1$  and  $t_1$  varies from 0 to 2
- The staggered flux  $\varphi$  varies from 0 to  $2\pi$
- Examine the density of states, band structure and Berry phase/curvature

## 4 Lattice



- Consider this lattice in 2D momentum space
- $t = 1$  and the flux  $\varphi = \pi/2$  - choose the unit cell accordingly
- The blue (larger) sites have an energy offset  $\Delta$  compared to the grey (smaller) sites, which varies from 0 to 10.
- Examine the density of states, band structure and Berry phase/curvature

## 5 Lattice



- Consider this lattice in 2D momentum space
- $t_1 = t_2 = 1$  and  $t_3$  varies from 0 to 3
- The red (larger) sites have an energy offset  $\Delta$  compared to the grey (smaller) sites, which varies from 0 to 20.
- Examine the density of states, band structure and Berry phase/curvature