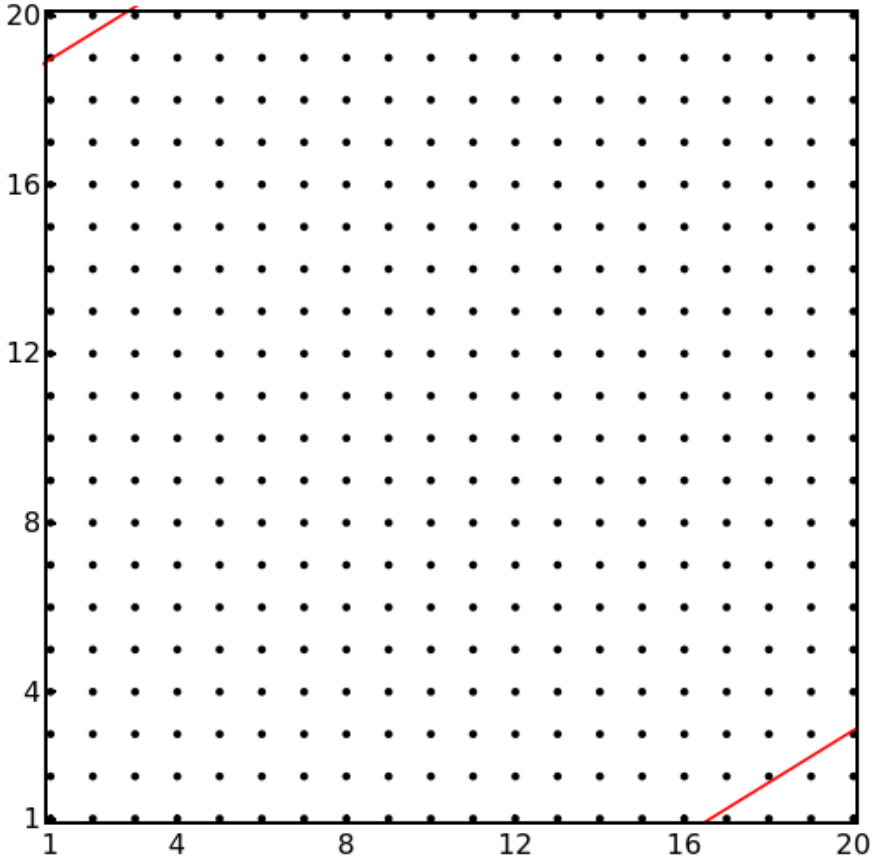
Summary of results for Bott index of QAHI quasicrystal

$$H = t\sin(k_x)\sigma_x + t\sin(k_y)\sigma_y + [m + t_0(\cos(k_x) + \cos(k_y))]\sigma_z$$

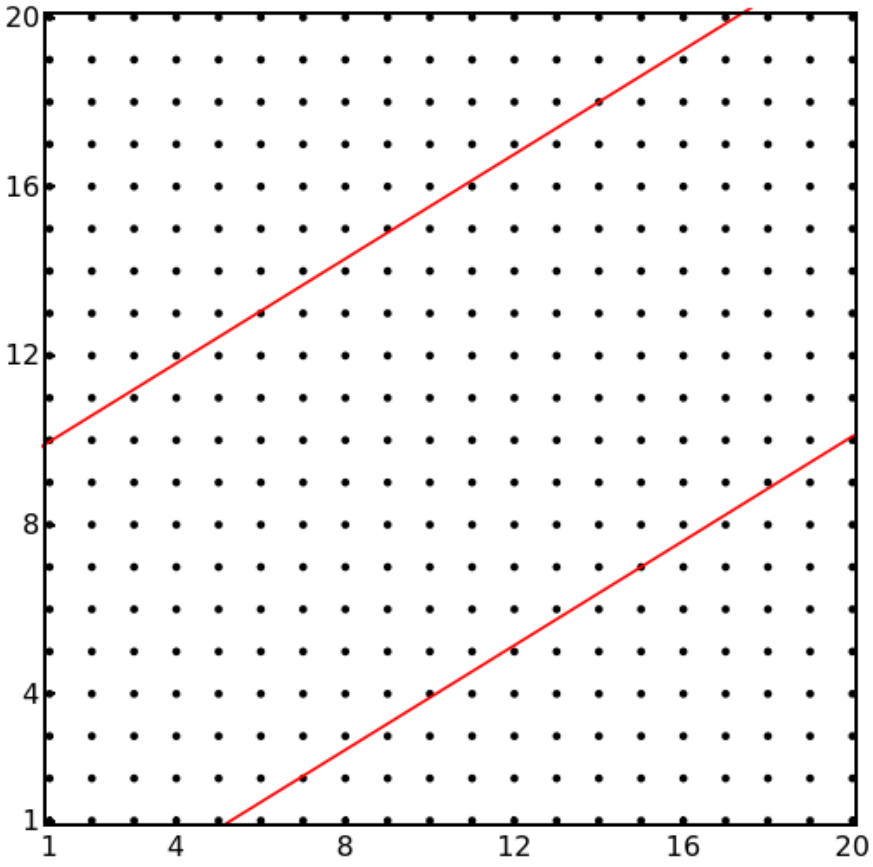
$$t = 1 = t_0$$

- When the quasicrystal is large, the Bott index is identical to the original system.
- The Bott index is ± 1 when $|m| < 2$ and it is 0 when $|m| > 2$
- There are no long range hoppings. (apparent from the arrayplot of the Hamiltonian).



- As the number of points in the quasicrystal is decreased, the Bott index becomes identically 0

- As the quasicrystal becomes smaller, non local hoppings become noticable in the Arrayplot of the renormalized Hamiltonian.



- This result is not very generic. In the intermediate regime, there is an oscillation.

  For a very large quasycrystal, the Bott index is ± 1.

  As we keep decreasing the quasicrystal size, first the Bott index becomes 0, then it again becomes ± 1 over a small region, and it again becomes 0 as the quasicrystal size is made smaller. And it remains 0 afterwards.