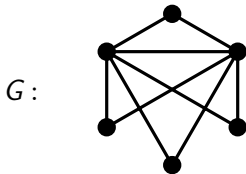


### Conjecture 0.1

If every vertex of  $G$  has ve-degree at least  $\lceil \frac{n}{2} \rceil^2$  then  $G$  is Hamiltonian, where  $n \geq 4$  is the order of  $G$ .



**Counter-Example.**  $G$  is a non-Hamiltonian 9-ve-regular graph of order 6.

# A class of Counter-Examples

Let  $G$  be obtained from a complete bipartite graph of bi-order  $(i, i+1)$  by adding  $\binom{i}{2}$  edges in the part of order  $i$ . Then  $G$  is a non-Hamiltonian  $(i(i+1) + \binom{i}{2})$ -ve-regular graph, where

$$(i(i+1) + \binom{i}{2}) = (3n-1)(n-1)/8 \approx \frac{3n^2}{8}.$$