Conjecture 0.1

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

Proof.

Suppose G is not Hamiltonian. We might assume that G is a maximal non-Hamiltonian graph. Let w be a vertex with minimum degree. Then $\deg(w) < n/2$ by Dirac's Theorem, and and for $u \notin G_1[w]$ there is a uw-Hamiltonian path. Since each vertex in $G - w$ has ve-degree at least $\lceil n/2 \rceil^2 - \deg(w)$ which is greater than or equal to $\lceil (n-1)/2 \rceil$, $G - w$ contains a Hamiltonian cycle. (Not finished......) $\square$