
AMANDA CHAFEE, Carleton University
Hamiltonian Cycles on Coverings

A covering design is a v -set V and a list B of b blocks of size k where every pair from V must occur in at least one block. A 1-block intersection graph (1-BIG) is a graph $G = (B, E)$, where $b \in B$ and $(b, b') \in E$ if $|b \cap b'| = 1$ for $b, b' \in B$. This talk will go over what independence sets look like in a 1-BIG based on coverings with $k = 3$. We prove that optimal $k = 3$ coverings $v \equiv 5 \pmod{3}$ have a Hamiltonian cycle and show why this proof fails for even v .