AMANDA CHAFEE, Carleton University

Conditions for a Block Intersection Graph (BIG) of Packings and Coverings to be Hamiltonian & their Relationship to DCCD

A double change covering design (DCCD) is a sequence of b k-sets, called blocks, of a V-set in which exactly two elements differ between consecutive blocks and every pair of elements in V is in some block.

We determine sufficient conditions for the block intersection graph (BIG) of block size k packings and block size 3 coverings to be Hamiltonian. The BIG of a packing is Hamiltonian for k even if $4[|X||V\setminus X| - \partial(X)] \geq vk$ and for k odd if $4k[|X||V\setminus X| - \partial(X) \geq v(k^2 - 1)$. The BIG of a covering is Hamiltonian if $v \geq 3$. Because of our interest in DCCD, we are also interested in Hamiltonian cycles in 1-BIG of block size 3 coverings and we discuss our progress in this case.