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Aras Erzurumluoglu* (aerzurum@uottawa.ca). *Hamiltonicity in 2-Block-Intersection Graphs of Twofold Triple Systems.*

A *balanced incomplete block design* (BIBD(v, k, λ)) (V, \mathcal{B}) is a combinatorial design in which (i) $|V| = v$, (ii) for each block $B \in \mathcal{B}$, $|B| = k$, and (iii) each 2-subset of V occurs in precisely λ blocks of \mathcal{B} . A BIBD($v, 3, 2$) is a *twofold triple system* (TTS(v)).

Given a combinatorial design \mathcal{D} with block set \mathcal{B} , the *block-intersection graph* (BIG) of \mathcal{D} is the graph having \mathcal{B} as its vertex set, and in which two vertices $B_1 \in \mathcal{B}$ and $B_2 \in \mathcal{B}$ are adjacent if and only if $|B_1 \cap B_2| \neq 0$. Similarly, the *i -block-intersection graph* (i -BIG) of \mathcal{D} is the graph having \mathcal{B} as its vertex set, and in which two vertices $B_1 \in \mathcal{B}$ and $B_2 \in \mathcal{B}$ are adjacent if and only if $|B_1 \cap B_2| = i$.

Recently David Pike and I completed the spectrum for TTSs with (respectively, without) Hamilton cycles in their 2-BIGs. In this talk I will present some of the constructions that collectively lead to these results. (Received September 22, 2017)