Guangzhou Discrete Mathematics Seminar

Extensions of Alspach's theorem to regular multipartite tournaments

Yubao Guo

RWTH Aachen University, Germany

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An arc of a digraph D is called pancyclic, if it lies on a cycle of length t for all $t \in \{3, \ldots, |V(D)|\}$. Alspach (*On cycles of each length in regular tournaments*, Canad. Math. Bull. 10, 1967) proved that every regular tournament T is arc-pancyclic, i.e., each arc of T is pancyclic.

Since multipartite tournaments, although a natural generalization of tournaments, don't have the same arc-pancyclicity as tournaments, we have tried to extend the classical cycle concept to multipartite tournaments in various ways.

In this talk, we will give an overview of quasi$_x$-arc-pancyclicity, $x \in \{$p, l, o, nl, ps$\}$, arc-pandashcyclicity in regular multipartite tournaments and leave a few open problems on this topic.

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