Packing and Covering Directed Triangles in Directed Simple Graphs

Claire Zhang // Auburn University

Tuza conjectured that if a graph contains at most t pairwise edge-disjoint triangles, then it can be made triangle-free by removing no more than 2t edges. It has recently been proven that in the case of directed multigraphs containing no more than t pairwise arc-disjoint directed triangles, deleting $2t - 1$ arcs is sufficient to ensure that the resulting graph contains no directed triangles. In this paper, we show that for any directed simple graph D with $t \geq 3$ pairwise arc-disjoint directed triangles, there exists a set of no more than $2t - 2$ arcs which meets e very directed triangles in D.