

## PACKING AND COVERING TRIANGLES IN GRAPHS

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This talk will be centred around an old conjecture of Tuza stating that if a graph has no more than  $k$  pairwise edge-disjoint triangles then it has a set of edges of cardinality at most  $2k$  meeting all its triangles. If true, this conjecture is best possible and there are many extremal graphs. Progress towards a solution of this conjecture has been slow, but it is now known that it does hold for a few classes of graphs, *e.g.* the classes of planar graphs and very dense graphs.

We shall present a new result that implies that Tuza's conjecture holds for tripartite graphs, and then we shall go on to discuss some related questions. Amongst others, we shall report on some results of Szemerédi and Tuza on a very attractive conjecture of Ryser concerning  $r$ -partite  $r$ -uniform hypergraphs.