1120-05-227Andrzej Czygrinow, Louis DeBiasio, Theodore Molla* (molla@illinois.edu) and
Andrew Treglown. Tiling directed graphs with tournaments. Preliminary report.

The Hajnal–Szemerédi theorem is a celebrated theorem in extremal graph theory. It states that for any integer $r \ge 1$ and any multiple n of r, if G is a graph on n vertices and $\delta(G) \ge (1-1/r)n$, then G can be partitioned into n/r vertex-disjoint copies of the complete graph on r vertices. We will discuss a very general analogue of this result for directed graphs: for any integer $r \ge 4$ and any sufficiently large multiple n of r, if G is a directed graph on n vertices and every vertex is incident to at least 2(1-1/r)n - 1 directed edges, then G can be partitioned into n/r vertex-disjoint subgraphs of size reach of which contain every tournament on r vertices. (Received February 22, 2016)