1092-05-165 **Andrzej Czygrinow** and **Theodore Molla*** (tmolla@asu.edu). *Tight co-degree condition for the existence of loose Hamilton cycles in* 3*-uniform hypergraphs.*

Recently many results analogous to Dirac's Theorem have been proved for hypergraphs. A (k,l)-*cycle* is a hypergraph in which the vertices can be arranged in a cycle so that every edge contains k consecutive vertices and every pair of consecutive edges intersect in exactly l vertices. Call a $(k,k-1)$-cycle a *tight cycle* and a $(k,1)$-cycle a *loose cycle*.

Let H be a 3-uniform hypergraph on n vertices with minimum co-degree $\delta(H)$. Rödl, Ruciński and Szemerédi proved that $\delta(H) \geq (1/2 + o(1))n$ implies that H contains a tight Hamilton cycle and Kühn and Osthus showed that $\delta(H) \geq (1/4 + o(1))n$ is sufficient for H to contain a loose Hamilton cycle. Both results are from 2006. In 2011 Rödl, Ruciński and Szemerédi improved their previous result by showing that, for sufficiently large n, $\delta(H) \geq \lfloor n/2 \rfloor$ implies the existence of a tight Hamilton cycle. We will sketch a proof of an analogous result for loose cycles, that is we will show that every sufficiently large 3-uniform hypergraph on $n \in 2\mathbb{Z}$ vertices with minimum co-degree at least $n/4$ contains a loose Hamilton cycle. This result is best possible and uses the probabilistic absorbing technique. (Received August 07, 2013)