

In 1963 Corrádi and Hajnal proved that if G is a graph on n vertices, n is divisible by 3 and $\delta(G) \geq 2n/3$, then G contains a triangle factor, i.e. a collection of $n/3$ vertex disjoint copies of K_3 . Since every graph G on n vertices with $\alpha(G) > n/3$ does not have $n/3$ vertex disjoint triangles, the theorem is sharp. It is natural to then ask for the minimum degree condition that guarantees a triangle factor when $\alpha(G) = o(n)$. We will show that for every $\varepsilon > 0$ there exists $\gamma > 0$ such that if G is a graph on n vertices, $\delta(G) \geq (1/2 + \varepsilon)n$ and $\alpha(G) \leq \gamma n$, then G has a triangle factor when n is sufficiently large and divisible by 3. This proof uses the absorbing method of Rödl, Ruciński and Szemerédi.

This is joint work with József Balogh and Maryam Sharifzadeh