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**Emily A Hynds\*** (eahynds@samford.edu) and **Ronald J Gould**. *A Generalization of a Result of Catlin: 2-Factors in Line Graphs.*

A 2-factor of a graph  $G$  consists of a spanning collection of vertex disjoint cycles. In particular, a hamiltonian cycle is an example of a 2-factor consisting of precisely one cycle. Harary and Nash-Williams described graphs with hamiltonian line graphs. Gould and Hynds generalized this result, describing those graphs whose line graphs contain a 2-factor with exactly  $k$  ( $k \geq 1$ ) cycles. With this tool, we show that certain properties of a graph  $G$ , that were formerly shown to imply the hamiltonicity of the line graph,  $L(G)$ , are actually strong enough to imply that  $L(G)$  has a 2-factor with  $k$  cycles for  $1 \leq k \leq f(n)$ , where  $n$  is the order of the graph  $G$ . (Received August 19, 2018)