The Hunt for the Dreaded Chorded Cycle

Ronald Gould
Emory University

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Abstract

There are hundreds of results dealing with finding cycles or collections of cycles in graphs. Many of these concern added properties the cycle (or cycles) must possess. However, these properties have usually been things like the cycle (or cycles) span the vertex set; or the edges of a matching are contained on a cycle, or lie one per cycle; or the cycle contains a set of vertices in some particular order; or any of many other properties that apply to the structure of the cycle itself. Only recently has there been some significant work on finding cycles with chords, that is, edges between nonconsecutive vertices of the cycle. I will survey much of this work and indicate how one goes about the proof in one particular case of k vertex disjoint doubly chorded cycles. Some open problems will also be presented.