

1145-05-913

Joseph Doolittle* (jdoolitt@ku.edu). *Constructing Counterexamples to a Conjecture of Perles.*

In 1970, Micha Perles conjectured that facets of simple d -polytopes were exactly the $d - 1$ -regular, $d - 1$ -connected, induced, separating subgraphs of the vertex-edge graph of the polytope. This was proved false in Haase and Ziegler's 2002 paper, where they construct a counterexample starting with Bing's House with two rooms. In this talk, I will discuss how this construction can be simplified and generalized, as well as give methods to generate more starting points that lead to counterexamples with additional desirable properties. (Received September 17, 2018)