Longest Paths in Series-Parallel Graphs

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Abstract

In 1966 Gallai asked whether all longest paths in a connected graph intersect in a common vertex. This is not true in general and various counterexamples have been found. However, many well-known classes of graphs have the so-called Gallai property, e.g. trees and outerplanar graphs. Recently, de Rezende et al. proved that 2-trees, which are maximal series-parallel graphs, also have this property.

In this talk, we present a proof that all series-parallel graphs have the Gallai property. Since the above mentioned classes are all series-parallel, our result gives a unified proof for all of them.

This is joint work with Cristina G. Fernandes and Carl Georg Heise.