

1079-05-337

Christian Joseph Altomare* (altomare@math.ohio-state.edu), 281 Franklin Avenue, Worthington, OH 43085. *On Structural Descriptions of Lower Ideals of Series Parallel Graphs and Posets.*

Robertson, Seymour, and Thomas sought to obtain a structure theorem for an arbitrary topological minor closed family of trees. Building on their work, Nigussie gave an algorithm to calculate such structure theorems. Nigussie's algorithm is efficient enough that specific structure theorems can be calculated quickly by hand.

The eventual goal of this line of research is to calculate a structure theorem for an arbitrary minor closed family of finite graphs. Even getting specific structure theorems is difficult, so the general problem is wide open. Since trees are the graphs of tree width at most 1, the tree width at most 2 case is a natural stepping stone. For the purpose of obtaining structure theorems, the study of tree width at most 2 is essentially the study of series parallel graphs.

Trees are both graphs and posets. We believe the theorems proved for trees thus far are best seen as poset theorems, and we thus work instead with series parallel posets. The speaker has obtained an efficient, Nigussie type algorithm for series parallel posets under the suborder relation. We present this result and how it relates to finding structure theorems for series parallel graphs under the minor relation. (Received January 17, 2012)