

## Bipartite Treewidth: Odd-minors and maximum independent set

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The concept of *odd-minors* is a generalisation of graph minors preserving the parity of cycles. As a consequence, bipartite graphs are closed under odd-minors and hence, for any non-bipartite graph  $H$  the class of  $H$ -odd-minor-free graphs can be seen as a generalisation of bipartite graphs. For this reason,  $H$ -odd-minor-free graphs exhibit structural and algorithmic properties similar to both,  $H$ -minor-free graphs and bipartite graphs. In this talk we present a first systematic investigation of the algorithmic properties of  $H$ -odd-minor-free graphs through an appropriate adaptation of treewidth together with an application to the MAXIMUM INDEPENDENT SET problem. We also discuss possible extensions and challenges moving forward.

Keywords: graph minors, treewidth, parameterized complexity, grid theorem