

GRID MINORS IN PLANAR GRAPHS

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(This talk is based on joint work with Wouter Cames van Batenburg, Quentin Claus, Gwenaël Joret, Robin Petit and Jean-Florent Raymond.)

In 1984, Robertson and Seymour showed that the treewidth of a planar graph with no $t \times t$ grid as minor is bounded by a function $g(t)$. Together with Thomas, they later proved that $g(t)$ can be taken to be linear. The current best known bound, due to Gu and Tamaki (2012), is $g(t) \leq \frac{9}{2}t - \frac{11}{2}$. In this talk, I will show an improved bound of $g(t) \leq 4t + O(1)$, which is within a factor 2 of optimal.