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Julia Chuzhoy* (cjulia@ttic.edu), 6045 S. Kenwood Ave, Chicago, IL 60637. *Excluded Grid Theorem: Improved and Simplified.*

One of the key results in Robertson and Seymour's seminal work on graph minors is the Excluded Grid Theorem. The theorem states that for every fixed-size grid H , every graph whose treewidth is large enough, contains H as a minor. This theorem has found many applications in graph theory and algorithms. Let $f(k)$ denote the largest value, such that every graph of treewidth k contains a grid minor of size $f(k)$. Until recently, the best known bound on $f(k)$ was sub-logarithmic in k . In this talk we will survey new results and techniques that establish polynomial bounds on $f(k)$. (Received August 09, 2015)