A Faster Algorithm for Independent Cut

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The previously fastest algorithm for deciding the existence of an independent cut had a runtime of $O^*(1.4423^n)$, where n is the order of the input graph. We improve this to $O^*(1.4143^n)$. In fact, we prove a runtime of $O^*\left(2^{(\frac{1}{2}-\alpha_\Delta)n}\right)$ on graphs of order n and maximum degree at most Δ, where $\alpha_\Delta = \frac{1}{2+4\lfloor\frac{\Delta}{2}\rfloor}$. Furthermore, we show that the problem is fixed-parameter tractable on graphs of order n and minimum degree at least βn for some $\beta > \frac{1}{2}$, where β is the parameter.