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Jozsef Balogh, Hong Liu* (hliu36@illinois.edu), **Sarka Petrickova** and **Maryam Sharifzadeh**. *The typical structure of maximal triangle-free graphs.*

Recently, settling a question of Erdős, Balogh and Petříčková showed that there are at most $2^{n^2/8+o(n^2)}$ n -vertex maximal triangle-free graphs, matching the previously known lower bound. Here we characterize the typical structure of maximal triangle-free graphs. We show that almost every maximal triangle-free graph G admits a vertex partition $X \cup Y$ such that $G[X]$ is a perfect matching and Y is an independent set.

Our proof uses the Ruzsa-Szemerédi removal lemma, the Erdős-Simonovits stability theorem, and recent results of Balogh-Morris-Samotij and Saxton-Thomason on characterization of the structure of independent sets in hypergraphs. The proof also relies on a new bound on the number of maximal independent sets in triangle-free graphs with many vertex-disjoint P_3 's, which is of independent interest.

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