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Eli Berger, Maria Chudnovsky, Krzysztof Choromanski and Shira Zerbib*
(zerbib@iastate.edu). *Tournaments, Caterpillars and the Erdos-Hajnal Conjecture*. Preliminary report.

A conjecture of Alon, Pach and Solymosi, which is equivalent to the celebrated Erdős-Hajnal Conjecture, states that for every tournament S there exists $\epsilon(S) > 0$ such that if T is an n -vertex tournament that does not contain S as a subtournament, then T contains a transitive subtournament on at least $n^{\epsilon(S)}$ vertices. We prove a weakening of this conjecture for an infinite class of tournaments C , that we call “caterpillars”. We prove that for every disjoint union of caterpillars C there exists $d(C) > 0$ such that every n -vertex tournament T that does not contain C as a subtournament contains a transitive subtournament of size

$$2^{d(C)\sqrt{\log n \log \log n}}.$$

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