

Unavoidable patterns in complete simple topological graphs

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Abstract

In this paper, we show that every complete n -vertex simple topological graph contains a topological subgraph on at least $(\log n)^{1/4-o(1)}$ vertices that is weakly isomorphic to the complete convex geometric graph or the complete twisted graph. This is the first improvement on the bound $\Omega(\log^{1/8} n)$ obtained in 2003 by Pach, Solymosi, and Tóth. We also show that every complete n -vertex simple topological graph contains a plane path of length at least $(\log n)^{1-o(1)}$.