

THE BIPLANAR TREE GRAPH

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The complete twisted graph of order n , denoted by T_n , is a complete simple topological graph with vertices u_1, u_2, \dots, u_n , where two edges $u_i u_j$ and $u_{i'} u_{j'}$ intersect if and only if $i < i' < j' < j$ or $i' < i < j < j'$. The convex geometric complete graph of order n , denoted by G_n , is a convex geometric graph with vertices v_1, v_2, \dots, v_n arranged counterclockwise, with each pair of vertices being adjacent. A biplanar tree of order n is a labeled tree with vertex set $\{v_1, v_2, \dots, v_n\}$ that can be embedded in both T_n and G_n as a planar graph. Given a connected graph G , the (combinatorial) tree graph $\mathcal{T}(G)$ is a graph whose vertices are the spanning trees of G , and two trees P and Q are adjacent in $\mathcal{T}(G)$ if there exist edges $e \in P$ and $f \in Q$ such that $Q = P - e + f$. For all positive integers n , $\mathcal{T}(n)$ denotes the graph $\mathcal{T}(K_n)$. The biplanar tree graph, $\mathcal{B}(n)$, is the subgraph of $\mathcal{T}(n)$ induced by the biplanar trees of order n . In this conference, we characterize biplanar trees and talk about some properties and structure of the biplanar tree graph.

References

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