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Abstract

A tree is a type of graph that is connected (there is a path between every pair of vertices) and is acyclic (no cycles in the graph). The Graceful Tree Conjecture which states that there exists a special labelling (called a graceful labelling) for every tree, remains an unsolved problem in graph theory despite continued efforts over the last 50 years. It has applications in coding theory and network communication addressing. The past summer, we explored the one-to-one correspondence between parking functions and labelled trees in order to find connections that can further our understanding of the elusive GTC.