

The orientable genus of certain complete tripartite graphs

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Abstract

In 1969, White conjectured that the orientable genus of the complete tripartite graph $K_{l,m,n}$, with $l \geq m \geq n$, is $\left\lceil \frac{(l-2)(m+n-2)}{4} \right\rceil$. In this talk we describe progress on this conjecture. We can show that White's conjecture is true in the cases where (m, n) , reduced modulo 4, is $(0, 0)$, $(0, 2)$, $(1, 1)$, $(2, 0)$, $(2, 1)$, $(2, 2)$, $(2, 3)$ or $(3, 3)$. We discuss similarities and differences between our approach to this problem and our approach to the corresponding problem for the nonorientable genus of complete tripartite graphs, which we recently solved.