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较大亏格曲面嵌入图的线性荫度

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Linear arboricity of an embedded graph on a surface of large genus

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摘要 通过度再分配的方法研究嵌入到曲面上图的线性荫度.

给定较大亏格曲面 Σ , 上嵌入图 G , 如果最大度 $\Delta(G) \geq (\sqrt{45-45\varepsilon} + 10)$, 且不含 4 -圈, 则其线性荫度为 $\lceil \frac{\Delta}{2} \rceil$, 其中若 Σ 是亏格为 $h(h > 1)$ 的可定向曲面时 $\varepsilon = 2 - 2h$, 若 Σ 是亏格为 $k(k > 2)$ 的不可定向曲面时 $\varepsilon = 2 - k$. 改进了吴建良的结果, 作为应用证明了边数较少图的线性荫度.

关键词: 线性荫度 曲面 嵌入图 欧拉示性数

Abstract: The linear arboricity of a graph G is the minimum number of linear forests which partition the edges of G . This paper proved that if G can be embedded on a surface of large genus without 4 -cycle and $\Delta(G) \geq (\sqrt{45-45\varepsilon} + 10)$, then its linear arboricity is $\lceil \frac{\Delta}{2} \rceil$, where $\varepsilon = 2 - 2h$ if the orientable surface with genus $h(h > 1)$, or $\varepsilon = 2 - k$ if the nonorientable surface with genus $k(k > 2)$. It improves the bound obtained by J. L. Wu. As an application, the linear arboricity of a graph with fewer edges were concluded.

Key words: linear arboricity surface embedded graph Euler characteristic

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