

Original Articles

Maximum Genus of Strong Embeddings

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摘要 The strong embedding conjecture states that any 2-connected graph has a strong embedding on some surface. It implies the circuit double cover conjecture: Any 2-connected graph has a circuit double cover. Conversely, it is not true. But for a 3-regular graph, the two conjectures are equivalent. In this paper, a characterization of graphs having a strong embedding with exactly 3 faces, which is the strong embedding of maximum genus, is given. In addition, some graphs with the property are provided. More generally, an upper bound of the maximum genus of strong embeddings of a graph is presented too. Lastly, it is shown that the interpolation theorem is true to planar Halin graph.

关键词 [CDC](#) [Halin graph](#) [strong embedding](#) [genus](#) [surface](#)

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Abstract The strong embedding conjecture states that any 2-connected graph has a strong embedding on some surface. It implies the circuit double cover conjecture: Any 2-connected graph has a circuit double cover. Conversely, it is not true. But for a 3-regular graph, the two conjectures are equivalent. In this paper, a characterization of graphs having a strong embedding with exactly 3 faces, which is the strong embedding of maximum genus, is given. In addition, some graphs with the property are provided. More generally, an upper bound of the maximum genus of strong embeddings of a graph is presented too. Lastly, it is shown that the interpolation theorem is true to planar Halin graph.

Key words [CDC](#) [Halin graph](#) [strong embedding](#) [genus](#) [surface](#)

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