Equitable partition of plane graphs with independent crossings into induced forests.

Summary: The cluster of a crossing in a graph drawing in the plane is the set of the four end-vertices of its two crossed edges. Two crossings are independent if their clusters do not intersect. In this paper, we prove that every plane graph with independent crossings has an equitable partition into \( m \) induced forests for any \( m \geq 8 \). Moreover, we decrease this lower bound 8 for \( m \) to 6, 5, 4 and 3 if we additionally assume that the girth of the considering graph is at least 4, 5, 6 and 26, respectively.

MSC:
05C62 Graph representations (geometric and intersection representations, etc.)
05C70 Edge subsets with special properties (factorization, matching, partitioning, covering and packing, etc.)
05C10 Planar graphs; geometric and topological aspects of graph theory

Keywords:
equitable partition; vertex arboricity; planar graph; IC-planar graph

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References:

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