

MAXIMUM CYCLE PACKING IN EULERIAN GRAPHS USING LOCAL TRACES

PETER RECHT AND EVA-MARIA SPRENGEL

Operations Research and Business Informatics
TU Dortmund
D 44221 Dortmund, Germany

e-mail: peter.recht@tu-dortmund.de
eva-maria.sprengel@tu-dortmund.de

Abstract

For a graph $G = (V, E)$ and a vertex $v \in V$, let $T(v)$ be a *local trace* at v , i.e. $T(v)$ is an Eulerian subgraph of G such that every walk $W(v)$, with start vertex v can be extended to an Eulerian tour in $T(v)$.

We prove that every maximum edge-disjoint cycle packing \mathcal{Z}^* of G induces a maximum trace $T(v)$ at v for every $v \in V$. Moreover, if G is Eulerian then sufficient conditions are given that guarantee that the sets of cycles inducing maximum local traces of G also induce a maximum cycle packing of G .

Keywords: edge-disjoint cycle packing, local traces, extremal problems in graph theory.

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