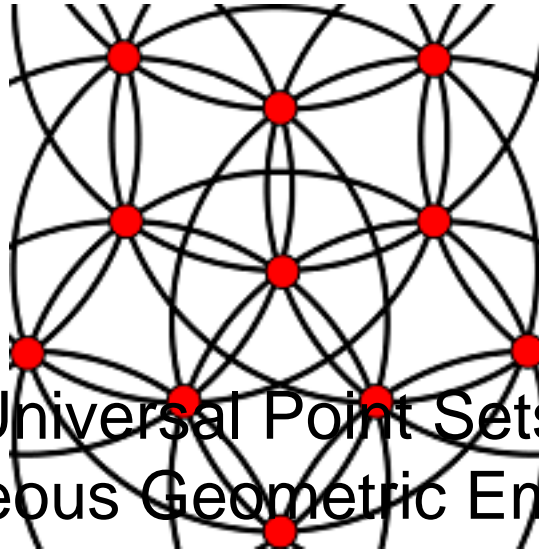


CSASC 2013



Contribution ID : 110

On Universal Point Sets and Simultaneous Geometric Embeddings

Content :

A set P of points in \mathbb{R}^2 is n -universal, if every planar graph on n vertices admits a plane straight-line embedding on P . Answering a question by Kobourov, we show that there is no n -universal point set of size n , for any $n \geq 15$.

Conversely, we use a computer program to show that there exist universal point sets for all $n \leq 10$ and to enumerate all corresponding order types. Finally, we describe a collection \mathcal{G} of 7393 planar graphs on 35 vertices that do not admit a simultaneous geometric embedding without mapping, that is, no set of 35 points in the plane supports a plane straight-line embedding of all graphs in \mathcal{G} . (Joint work with Jean Cardinal and Vincent Kusters.)

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