Orientations of Planar Graphs

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007 Kemeny Hall, 4:00 pm
(Tea 3:30 pm 300 Kemeny Hall)

Abstract

We consider orientations of planar graphs, e.g., bipolar orientations, Schnyder woods and general alpha-orientations. To motivate their study we show some applications of these objects. Then we turn to counting problems and ask questions like: How many bipolar orientations can a planar graph on n vertices have? How many Schnyder woods of triangulations with n vertices exist? Regarding the first question we can only provide bounds but in the second case there is a closed formula and a bijective proof. If time allows we introduce a distributive lattice structure on alpha-orientations and explain some generalizations.

This talk should be accessible to graduate students.

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