On facial parity edge colorings

Borut Lužar

(joint work with Riste Škrekovski)

A *facial parity edge coloring* of a 2-edge connected plane graph is an edge coloring where no two consecutive edges of a facial trail of any face receive the same color. Additionally, for every face f and every color c either no edge or an odd number of edges incident to f is colored by c. In 2011, Czap, Jendroľ, and Kardoš [3] defined this type of coloring motivated by the strong parity edge coloring introduced by Bunde, Milans, West, and Wu [1, 2]. Later, Czap et al. [4] showed that 20 colors always suffice to color a 2-edge connected plane graph. In the talk we will show how this bound can be reduced to 16.

References

[1] D.P. Bunde, K. Milans, D.B. West, H. Wu, Optimal strong parity edge-coloring of complete graphs, Combinatorica 28 (2008), 625–632.

[2] D.P. Bunde, K. Milans, D.B. West, H. Wu, Parity and strong parity edge-coloring of graphs, Congr. Numer. 187 (2007), 193–213.

[3] J. Czap, S. Jendroľ, F. Kardoš, Facial parity edge colouring, Ars Math. Contemp. 4 (2011), 255–269.

[4] J. Czap, S. Jendroľ, F. Kardoš, R. Soták, Facial parity edge colouring of plane pseudographs, Discrete Math. 312 (2012), 2735–2740.