On face irregular entire labeling of plane graphs

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(joint work with Stanislav Jendroľ, K.M. Kathiresan, and K. Muthugurupackiam)

Motivated by irregular assignments [2], total irregularity strengths [1] and the recent papers on entire coloring and vertex coloring of plane graphs [4, 3] we study irregular labelings of plane graphs with restrictions placed on the weights of faces.

For a plane graph $G = (V, E, F)$ we define a labeling $\varphi : V \cup E \cup F \to \{1, 2, \ldots, k\}$ to be an entire k-labeling. The *weight* of a face f under an entire k-labeling φ, $w_\varphi(f)$, is the sum of labels carried by that face and all the edges and vertices surrounding it. An entire k-labeling φ is defined to be a *face irregular entire k-labeling* of the plane graph G if for every two different faces f and g of G there is $w_\varphi(f) \neq w_\varphi(g)$.

The *entire face irregularity strength*, denoted $efs(G)$, of a plane graph G is the smallest integer k such that G has a face irregular entire k-labeling.

The main aim of the talk is to show estimations on the parameter efs and determine the precise values of efs for some families of plane graphs.

REFERENCES

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