

FRACTIONAL GRAPHAL PROPERTIES

PETER MIHÓK

A graphal property is a concept in given categories of graphs. We can assume here that a graphal property \mathcal{P} is any nonempty isomorphism-closed class of simple (finite or infinite) graphs. We will consider additive and hereditary graphal properties i.e. classes closed under disjoint union and subgraphs.

Let a, b be positive integers, $a > b$ and \mathcal{P} be an additive and hereditary graph property. A *fractional (circular) edge- $(\mathcal{P}, \vdash : \lfloor \cdot \rfloor)$ -colouring* of a graph G is a mapping ϕ of $E(G)$ to the set of all b -element subsets (of b consecutive elements modulo a) of $\{0, 1, \dots, a - 1\}$ such that for each "colour" $i, 0 \leq i \leq a - 1$ the subgraph $G[i]$ induced by the edges where $i \in \phi(e)$ has the property \mathcal{P} .

The fractional invariants were introduced in [2]. In 1999 we considered with Zsolt Tuza and Margit Voigt (see [1]) the generalized fractional chromatic number of graph. In our talk we will consider the generalized fractional chromatic index of graphs and related graphal properties.

References

- [1] P. Mihók, Zs. Tuza and M. Voigt: *Fractional \mathcal{P} -colourings and \mathcal{P} -choice-ratio*, Tatra Mountains Math. Publ. **18** (1999) 69–77.
- [2] E.R. Scheinerman and D.H. Ullman: *Fractional Graph Theory*, John Wiley & Sons. (1997) <http://www.ams.jhu.edu/~ers/fgt>.