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On the 1-switch conjecture. (English) [Zbl 1361.05055]

Summary: T. Feder and C. Subi [Discrete Appl. Math. 161, No. 10–11, 1421–1426 (2013; Zbl 1287.05134)] conjectured that for any 2-coloring of the edges of the $n$-dimensional cube, there is an antipodal pair of vertices connected by a path that changes color at most once. They proved that if the coloring is such that there are no properly edge colored 4-cycles, the conjecture is true, without a color change. We generalize their theorem by weakening the assumption on the coloring. Our method can be applied to a similar question on any graph, if the condition on the coloring is satisfied. We solve the corresponding problem on the toroidal grid of size $2a \times 2b$.

MSC:
05C15 Coloring of graphs and hypergraphs
05C78 Graph labelling (graceful graphs, bandwidth, etc.)

Keywords:
hypercube; n-cube; edge coloring; labelling; antipodal

Full Text: DOI

References:

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