

The Asymmetric Index of a Graph and Balanced Incomplete Block Designs

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A graph G is asymmetric if its automorphism group of its vertices is trivial. Any graph can be made asymmetric by removing some number r of edges and/or adding adding some number s of edges. We define the *asymmetric index of a graph G* to be the minimum $r + s$ needed to change G into an asymmetric graph. We give a construction of families of graphs arising from balanced incomplete block designs which suprisingly have an asymmetric index of 1.

Keywords: asymmetric graphs; balanced incomplete block designs