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B-Coloring of Regular Graphs

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Oral Presentation O8.2

B-COLORING OF REGULAR GRAPHS

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Abstract. A graph is an ordered pair $G=(V,E)$, comprising a set V of the vertex set with a set E of the edge set. We have a coloring of the vertices, denoted b -coloring, in such a fashion: 1) every vertex receives a color different from its neighboring vertices; 2) every color class contains a vertex that has a neighbor in all other color classes. The b -chromatic number $b(G)$ of a graph G is the largest integer k such that G has a b -coloring with k colors. We prove that for any d -regular graph with girth 5, the b -chromatic number is at least $\lfloor \frac{d+1}{2} \rfloor$.