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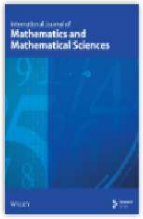

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The Metric Chromatic Number of Zero Divisor Graph of a Ring Z_n

Abstract:

Let Γ be a nontrivial connected graph, $c : V(\Gamma) \longrightarrow \mathbb{N}$ be a vertex colouring of Γ, and L_i be the colouring classes that resulted, where $i = 1,2, \ldots, k$. A metric colour code for a vertex a of a graph Γ is $c(a) = (d(a, L_1), d(a, L_2), \ldots, d(a, L_n))$, where $d(a, L_i)$ is the minimum distance between vertex a and vertex b in L_i. If $c(a) \neq c(b)$, for any adjacent vertices a and b of Γ, then c is called a metric colouring of Γ as well as the smallest number k satisfies this definition which is said to be the metric chromatic number of a graph Γ and symbolized $\mu(\Gamma)$. In this work, we investigated a metric colouring of a graph $\Gamma(Z_n)$ and found the metric chromatic number of this graph, where $\Gamma(Z_n)$ is the zero-divisor graph of ring Z_n.