

## Chromatic and achromatic numbers of unitary addition Cayley graphs

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Let  $R$  be a finite ring. The unitary addition Cayley graph of  $R$ , written  $\mathcal{U}(R)$ , is the graph with vertex  $R$  and two vertices  $x$  and  $y$  are adjacent if  $x + y$  is a unit. We determine a formula for the clique and chromatic number of such graphs when  $R$  is a product of local rings. This includes the special case  $R = \mathbb{Z}_n$ , the integers modulo  $n$ , where these parameters had been found only when  $n$  is even, or when  $n$  is a power of an odd prime. Additionally, we study the achromatic number of  $\mathcal{U}(\mathbb{Z}_n)$  in the case that  $n$  is the product of two primes. We obtain an exact formula when  $n = 3q$  where  $q > 3$  is prime, and prove a lower bound that applies when  $n = pq$  with  $3 \leq p < q$  prime.

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