Full Friendly Index Set of $C_m \times C_n$

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Let $G = (V, E)$ be a connected simple $(p, q)$-graph. A labeling $f : V \to \mathbb{Z}_2$ induces an edge labeling $f^* : E \to \mathbb{Z}_2$ defined by $f^*(xy) = f(x) + f(y)$ for each $xy \in E$. For $i \in \mathbb{Z}_2$, let $v_f(i) = |f^{-1}(i)|$ and $e_f(i) = |f^*^{-1}(i)|$. A labeling $f$ is called friendly if $|v_f(1) - v_f(0)| \leq 1$. For a friendly labeling $f$ of a graph $G$, we define the friendly index of $G$ under $f$ by $i_f(G) = e_f(1) - e_f(0)$. The set $\{i_f(G) | f \text{ is a friendly labeling of } G\}$ is called the full friendly index set of $G$, denoted by $\text{FFI}(G)$. In this talk, we will present some results on the full friendly index sets of cartesian product of two cycles.