

Given a graph G , a labeling $c : V(G) \rightarrow \{1, 2, \dots, r\}$ is said to be r -distinguishing if the only element in $\text{Aut}(G)$ that preserves the labels is the identity. The distinguishing number of G , denoted by $D(G)$, is the minimum r such that G has an r -distinguishing labeling. Distinguishing was introduced by Albertson and Collins ten years ago. If $G \times H$ denotes the Cartesian product of G with H , let $G^2 = G \times G$ and $G^r = G \times G^{r-1}$. In a sequence of papers Albertson, Klavzar and Zhu, and Imrich and Klavzar have shown that $D(G^r) = 2$ provided G is connected and r is large enough. This talk will introduce both distinguishing and Cartesian products and sketch a proof of the above mentioned result for graphs that are prime with respect to the Cartesian product. The proof uses the delightful motion lemma of Russell and Sundaram whose proof will also be sketched.