

## **(2,3)-Cordial Trees and Paths**

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A  $(0,1)$ -labeling of a set is called *friendly* if approximately one half of the elements are labeled 1 and the other half labeled 0. Let  $f$  be a friendly labeling of the vertex set of a graph, then an induced labeling  $g$  of the edge set is also friendly then  $f$  and  $g$  together form a cordial labeling. In this talk we talk about an extension of this idea to directed graphs using a restricted quasi-group labeling, called a  $(2,3)$ -Cordial Labeling. A directed graph is  $(2,3)$ -Cordial if there is a friendly labeling that induces a balanced  $(1,0,-1)$  labeling on the arc set via a head minus tail labeling. If a non-directed graph can have its edge set oriented into a  $(2,3)$ -Cordial directed graph it is called  $(2,3)$ -Orientable. This talk will formally define  $(2,3)$ -Cordiality, starting from the perspective of quasi-group cordiality, as well as investigate paths and trees, and discuss theorems related to when a graph is  $(2,3)$ -Orientable.

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