

The diagram illustrates the structure of the root system E_6 and its various sub-root systems. The root system is represented by a central node $E_6(-2, -4, -4, -5)$, which branches into three main paths. Each path represents a different way to decompose the root system into a sum of two root systems. The labels for the nodes are in blue text, and the edges are black lines. The diagram is a complex tree structure, with the root at the top and branches extending downwards. The nodes are labeled with the Dynkin diagram E_6 and its associated weights. The edges are labeled with the weights of the roots that are added or subtracted to move from one node to another. The diagram is a visual representation of the algebraic structure of the root system E_6 .