

Diagram illustrating the structure of the  $W$ -algebra  $W(\mathfrak{sl}_3)$  and its associated Dynkin diagrams. The top part shows the Dynkin diagram for  $W(\mathfrak{sl}_3)$ , which is a  $D_4$  diagram with a central node and three outer nodes. The bottom part shows the Dynkin diagrams for the  $W$ -algebra  $W(\mathfrak{sl}_3)$  and its associated Dynkin diagrams, including the  $W$ -algebra  $W(\mathfrak{sl}_3)$  and the  $W$ -algebra  $W(\mathfrak{sl}_3)$ .