

Poster Presentation

MS84.P05

Color-Coding Point Group & Space Group Diagrams and other Mathematical Journeys

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Color clarifies diagrams point group and space group diagrams. For example, consider the general position diagrams and the symbol diagrams. Symmetry operations can be represented by matrices whose determinant is either plus one or minus one. In the former case there is no change of handedness and in the latter case there is a change of handedness. The general position diagrams emphasize this information by color-coding. The symbol diagrams are a little more complicated and will be demonstrated. The second topic is a comparison of the thirty-two three-dimensional point groups with their corresponding 18 abstract mathematical groups. The corresponding trees will be explored. This discussion leads into the topic of irreducible representations.

Keywords: mathematical crystallography, Point Groups and space groups, abstract groups