The geometric symbols of 227 crystallographic point groups of the four dimensional Euclidean space

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We define the point symmetry operations (PSO) of the four-dimensional Euclidean space and in particular we stress upon elementary, nonelementary, degenerate and nonegendegenerate PSO. Then we clearly specify their geometric supports. This notion thus introduced has suggested a symbol to all the 227 four-dimensional crystallographic point groups which extends the Hermann-Mauguin notation. This symbol will allow to find all the elements of the point group.

For instance, for the crystal system n° 7 "parallelogram-square orthogonal" and called "tetragonal monoclinic" by Brown, Solow, Nebüser, Wondratschek & Zassenhaus (1973), we suggest:

4, m, m for the polar (1) group D7h-06 of the tabulation of Brown et al.

2/m, m, m for the group D7-07 of the same tabulation.

The 32 polar crystallographic point groups in E4 have the same symbol as the point group of E5 which has generated it.


CLEBSCH-GORDAN COEFFICIENTS FOR THE SPACE GROUP OF GARNETS. By M. Suffczynski, Institute of Physics, Polish Academy of Sciences, Lotnikow 32, Warsaw 02-668, Poland, and H.W. Kunert, Freie Universität Berlin, Berlin West

The Clebsch-Gordan coefficients for the irreducible representations of the space group of garnets are computed. The wave vector selection rules at the symmetry points are written out in full, and blocks of the Clebsch-Gordan coefficients are enumerated. Tables of Clebsch-Gordan coefficients for decomposition of Kronemecker squares of the irreducible representations at the symmetry points on the surface of the Brillouin zone into the representations at the zone centre are presented.