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Characterization of Crystal Lattices

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At present time, crystal lattices are characterized by means of the 44 reduced forms tabulated in Int. Tables for Crystallography, Vol. A, 1983, pag.737. Recently, we have found that this classification can be improved by a more careful analysis of the metric properties of each reduced form. Foe example, we know that the reciprocal cell of a face-centered lattice is body-centerd, and vice-versa. In the orthorhombic system there are two oF reduced forms (#16 and #26) and three oI (#8, 19 and 42) and therefore there is no one to one relationship between direct and reciprocal reduced forms. In fact, form oF #16 can be split into two sub-forms, both obeying the conditions AAC/DDF plus [2D+F]=A (Int.Tables, loc.cit.) but with different metric properties, one of which has reciprocal form oI #8 and the other reciprocal form oI #19. This method is being extended to all reduced forms of centerd lattices and a new list of will be presented.

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