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## *The 17,803 types of double antisymmetry space groups*

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Double antisymmetry, as a type of color symmetry, refers to the consideration of two independent color-reversing operations. We found that there are 17,803 types of double antisymmetry space groups. The "types" of double antisymmetry space groups being the proper affine equivalence classes thereof, i.e. if two groups differ only by changes in origin, lattice constants, and angles then they are considered the same type of group, just as with the 230 types of crystallographic space groups. The significance of listing the types of double antisymmetry space groups is that it gives all possible symmetries of a crystal when two independent antisymmetries are considered in conjunction with the conventional 3D Euclidean space symmetry. Examples from our listing of their properties and symmetry diagrams (available online) will be given.

**Keywords:** antisymmetry, double antisymmetry space groups, proper affine equivalence classes