Groups and symmetries: From the Neolithic Scots to John McKay
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Three-dimensional Space Groups

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Abstract

The 3-dimensional crystallographic space groups were independently enumerated by Barlow, Schoenfliess and Fedorov in the 1890s. There are 219 of them (or 230 if we count left- and right-handed forms). A century later Delgado, Huson, Thurston and I greatly simplified the enumeration, in a way that illuminates many relationships between the groups.

I shall describe our notation for the 35 "prime" groups (those that have no invariant family of parallel lines), and show how it displays all the index 2 relationships between them.