

Oral Contributions

[MS14-03] Irreducible representations for generating (3+d)-dimensional modulated structures

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Representational analysis can be very useful for the characterization of incommensurately-modulated structures [1].

First, a crystallographic space group is extended to superspace by adding an internal space of continuous phase shifts, one for each independent modulation vector. Irreducible representations (IRs) of this superspace extension group [2-4] then give rise to isotropy subgroups that are superspace groups, wherein the relative modulation phases are fixed. The IRs of (3+d)-dimensional superspace extensions of space groups have recently been exhaustively tabulated [2,5], which will facilitate their use within a variety of software packages [6]. We will demonstrate their application to incommensurately-modulated magnetic and displacive structures with $d > 1$.

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