Recent Aspects of the Theory of Oriented Crystal Associations

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Despite its long history, twinning is far from having disclosed all its secrets. Although the definition of twinning is unambiguous, it is still sometimes used in a less appropriate way. The typical example is that of "cell-twinning", a phenomenon by which homogeneous modular structures derive from iso- or heterochemical archetypes with a possible chemical modification at the interface. Modules in cell-twins are related by space-groupoid operations (defined in point space) and the edifice is homogeneous, whereas individuals in twins are related by point group operations (defined in vector space) and the edifice is heterogeneous [1].

The classical reticular theory of twinning had to be extended to include cases not fitting the original classification, leading to a finer subdivision of Friedel's categories [2]. The most recent extension concerns the coexistence of up to three sublattices, which correspond to different types of non-merohedric twinning resulting in an effective twin index (degree of quasi-overlap of lattice nodes) significantly higher than the classical twin index [3].

[1] Nespolo M., Ferraris G., Ďurovič S., Takéuchi Y., *Z. Kristallogr.* 2004, **219**, 773. [2] Grimmer H., Nespolo, M., *Z. Kristallogr.* 2005, **220**, *in press*. [3] Nespolo M., Ferraris G., *Z. Kristallogr.* 2005 **220**, *in press*.
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