



Fig. 1.10 [001] project by rotating two f.c.c. (other white) by $\theta = 2 \tan^{-1} \frac{1}{3}$. The CSL unit cell coincides square mesh inside the lattice. (From Pond and

deferred to a later stage. The space groups of the black and white crystals are denoted by Φ^b and Φ^w . Since these are Fedorov space groups, the Russian 'f', Φ , is used. The asterisk indicates that the structures of the black and white crystals may have lower symmetry groups, depending on the atomic bases.

The first stage of dissymmetrization is to allow the two lattices to penetrate to form the *dichromatic pattern*. In the creation of the interface, one lattice is rotated to introduce the relative orientation c in the final interface. Figure 1.10 illustrates a dichromatic pattern of two lattices misoriented by a rotation of $\theta = 2 \tan^{-1} \frac{1}{3}$ about a common axis. Both ordinary and antisymmetric dichromatic patterns are shown in Fig. 1.12. The space group of the dichromatic pattern, as seen in Fig. 1.10. The space group therefore contains both types of operation and such a group is called a *dichromatic space group*. The symbol used to denote a dichromatic space group is $\Phi^b \Phi^w$, after the Russian crystallographer Shubnikov, who pioneered the study of such groups. The symmetry of the dichromatic pattern depends on the relative translation of the two lattices. We may adjust the relative translation to obtain the colour group with maximal symmetry, which is the *colour group*.