3.20: Mosaic crystal

The **mosaic crystal** is a simplified model of real crystals proposed by C. G. Darwin. In this model, a real crystal is described as a mosaic of crystalline blocks with dimensions of 10^{-5} cm, tilted to each other by fractions of a minute of arc. Each block is separated from the surrounding blocks by faults and cracks.

In a diffraction experiment, interference between waves only occurs inside a block, whose dimensions satisfy the theoretical conditions of applicability of the kinematical theory. Because of the loss of coherence between the waves diffracted from different blocks, the diffracted intensity from the whole crystal is equal to the sum of the intensities diffracted by every block.