3.21: Primary extinction

The **primary extinction** is responsible for the loss of intensity due to dynamic effect inside every block of a mosaic crystal. At the Bragg angle, each incident wave can undergo multiple reflections from different atomic planes; each scattering introduced causes a phase difference of $\lambda/4 = \pi/2$ so that along each direction waves differing by an even number of scattering, *i.e.* by $n\pi$ in phase, interfere , whose intensity decreasing rapidly with the number of scatterings. Because of the decrease in intensity of waves multiply scattered, the effect of waves differing by more than two scatterings can normally be neglected: in each direction one observes then the destructive interference between waves having a significant difference in intensity and an overall reduction of the intensity with respect to the intensity given by the kinematical theory.