

Abstract : This thesis deals with evolution of dislocation structures in magnesium alloys containing long-period stacking ordered phase (LPSO). Before deformation the samples were studied by optical light microscopy, in the process of deformation by neutron diffraction. Obtained diffraction profiles were of two types, axial and radial diffraction profiles (created by planes oriented in the direction of deformation and orthogonally to the direction of deformation). Profiles were evaluated by Convolutional Multiple Whole Profile method and by Hexburger program. This work is focused on the role of LPSO phase in the evolution of dislocation density and population of dislocations in slip systems depending on the composition of alloys and on the volume fraction of LPSO phase.