

**ABSTRACT**

METHOD OF ADJUSTING LIGHTING OPTICAL DEVICE,  
LIGHTING OPTICAL DEVICE, EXPOSURE SYSTEM, AND  
5 EXPOSURE METHOD

An illumination optical apparatus is arranged to illuminate a surface to be illuminated, with light in a desired polarization state, without substantive influence of manufacturing error of an optical member functioning as a wave plate. The illumination optical apparatus illuminates the surface to be illuminated (M, W) on the basis of light from a light source (1). The illumination optical apparatus is provided with a polarization converting element (12) disposed on or near an illumination pupil plane and adapted for converting a polarization state of incident light into a predetermined polarization state. The polarization converting element has a plurality of variable optical rotating members for variably yielding an angle of rotation to incident linearly polarized light. Each variable optical rotating member has two deviation prisms which are made of an optical material with an optical rotatory power and which are movable relative to each other along a direction intersecting with the optical axis (AX).

Figure 1