Title (en)

STRUCTURES AND METHODS FOR REDUCING ABERRATION IN OPTICAL SYSTEMS

Title (de)

STRUKTUREN UND VERFAHREN ZUR VERRINGERUNG DER ABERRATION IN OPTISCHEN SYSTEMEN

Title (fr)

STRUCTURES ET PROCEDES DE REDUCTION D'ABERRATION DANS DES SYSTEMES OPTIQUES

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Application

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Abstract (en)

[origin: WO03038479A2] An optical system includes multiple cubic crystalline optical elements and one or more polarization rotators in which the crystal lattices of the cubic crystalline optical elements are oriented with respect to each other to reduce the effects of intrinsic birefringence and produce a system with reduced retardance. The optical system may be a refractive or catadioptric system having a high numerical aperture and using light with a wavelength at or below 248 nanometers. The net retardance of the system is less than the sum of the retardance contributions of the respective optical elements. In one embodiment, all cubic crystalline optical elements are oriented with identical three dimensional cubic crystalline lattice directions, a 90 DEG polarization rotator divides the system into front and rear groups such that the net retardance of the front group is balanced by the net retardance of the rear group. The optical system may be used in a photolithography tool to pattern substrates such as semiconductor substrates and thereby produce semiconductor devices.

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