Abstract of the Disclosure

OPTIMIZING USE AND PERFORMANCE OF OPTICAL SYSTEMS IMPLEMENTED WITH TELECENTRIC ON-AXIS DARK FIELD ILLUMINATION

Systems and methods are provided for imaging a planar specular object (102) such as a semiconductor wafer. In one embodiment, an imaging system (100) for imaging a defect on a planar specular object (102) includes a telecentric lens (110) having a sufficiently aspherical surface such that the telecentric lens (110) is substantially corrected for an optical aberration. The imaging system (100) also includes a telecentric stop (116) including an aperture therein to block light reflected from the planar specular object (102) while allowing light reflected from the defect to pass through the aperture. The imaging system (100) further includes a lens group (108) having a system stop positioned between the telecentric stop (116) and the lens group (108). The lens group (108) is substantially corrected for the optical aberration independent of the telecentric lens (110).

FIG. 1A