Scanning Optical System for a Large Axial Scan Depth Anterior Segment Optical Coherence Tomography (OCT)

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Technology description

Brief Description:
A system to improve vision care accommodation and intraocular lens development.
This invention identifies the two limitations associated with the traditional telecentric scan that most of the commercial anterior segment optical coherence tomography (OCT) systems use and proposes a novel design to tackle these issues.

Most of the commercial anterior segment OCT systems use telecentric scan geometry in which the beam is shone straight into the eye parallel to the optical axis. This technique poses two major challenges: first, the design leads to a significant reduction in the amount of backscattered light collected by the OCT system; and second, the fact that pupil dilation is necessary to image a large diameter lens. The plan to overcome these limitations is to design an asymmetric focusing optics system that provides angle of incidence of each scan beam normal to the ocular surfaces. The final design proposes a system which results in a substantial increase in light intensity reflected from each surface. This technology will be applied to and improve vision care accommodation, presbyopia, and intraocular lens development.

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