Special Section Guest Editorial: Advances in Optical Measurements and Instrumentation for Ophthalmology and Optometry

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Science and technology have been continuously advancing, and as a consequence new and better scientific instruments have been invented. Ophthalmology and optometry have not been static either, and as a result better and more precise optical instrumentation has been developed with great success to better diagnose and treat eye diseases.

The eye has captured the interest of scientists for a long time. The first impressive advance was that of William Helmholtz in 1851, when he invented the direct ophthalmoscope to visually examine the interior of the eye. His main publication entitled *Handbuch der Physiologischen Optik* has been a fundamental reference in this field since his times in the second half of the 19th century.

Later, at the beginning of the 20th century, Allvar Gullstrand, born in Sweden, pursued investigations in the physiology of the eye with results that made him the recipient of the 1911 Nobel Prize in Medicine. Gullstrand, famous for his work on astigmatism and improving the Helmholtz ophthalmoscope, also made corrective lenses for use after removal of a cataract from the eye.

Although not directly due to interest in the human eye, the invention of computer axial tomography by Allan M. Cormack, from the University of Capetown in South Africa, was also a very important development that allowed several years later the invention of optical coherence tomography for the eye. In addition, advances in wavefront sensing and adaptive optics have been incorporated into clinical practice successfully.

A list of contemporary exceptional researchers in this area is extremely large and any attempt to list them would be impossible. In this special section of *Optical Engineering*, we present a few important examples of current research in this field.