

Is mainstream SLO the beginning of the end of the traditional fundus camera?



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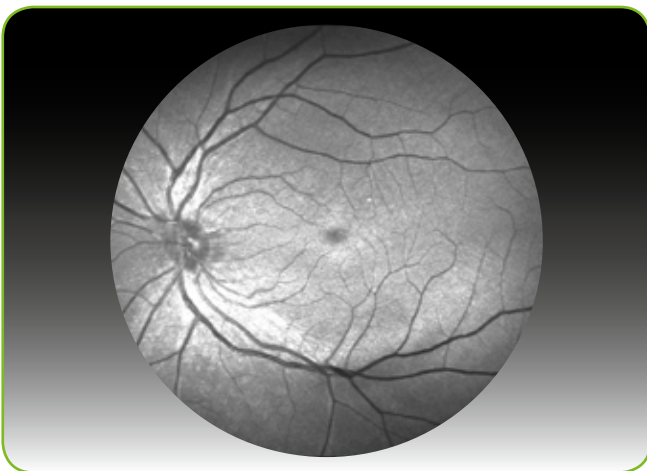


While eye specialists agree that Scanning Laser Ophthalmology (SLO) outperforms the traditional fundus camera, it has remained an exclusive technology until today. The physical size and high price of SLO based retinal imaging systems restricted them exclusively to hospital ophthalmology departments and large optometry practices. Now, SLO has become available for practices of all sizes, big and small, with the arrival of a compact and lightweight SLO solution. So is SLO about to go mainstream?

Among those who think it will are Dr. Thomas Theelen, Associate Professor at the Department of Ophthalmology, Radboud University Nijmegen Medical Center, the Netherlands, and Prof. Giovanni Staurenghi, of Professor of Ophthalmology at the Sacco Hospital Eye Clinic, University of Milan, Italy. They believe that today's technological momentum will finally make SLO's superior performance truly accessible for everyone. And, that this is essential given the rapidly growing

Since the introduction of SLO in 1979, and, especially, its confocal variant in the mid 1990s, the inherent benefits of SLO technology have helped it evolve from its early role as a platform for monochromatic imaging, fluorescein angiography and perimetry, to support new applications. Today these include confocal SLO (also known as Scanning Laser Ophthalmoscopy), Scanning Laser Doppler Flowmetry (not available), Scanning Laser Angiography, Scanning Laser Corneal Microscopy, and Scanning Laser Microperimetry.

incidence of diabetic retinopathy, AMD, and glaucoma that health-care providers both in the West and developing countries are facing. Dr. Theelen, a firm advocate of SLO, explains why he is happy >>



EasyScan undilated image



Fundus camera dilated image

that innovations break down the barriers to SLOs widespread adoption. "Direct comparisons have already shown us that SLO images offer better contrast, and the use of multiple colored lasers allows for more precision than traditional fundus cameras.

unstable. The modern laser diodes are much cheaper, use less energy, and you can put multiple colors into a device. The EasyScan and Heidelberg devices for instance, are both small and can be used in normal practices." EasyScan, in particular, is easy to transport and

"SLO will help us to enable the automatic detection of diabetes and AMD." Dr. Thomas Theelen

By scanning across the posterior pole of the eye, a confocal SLO can deliver contrast-rich images with a much greater depth of field than a fundus camera, even when faced with media opacities. Especially with older patients with cataracts." Now, today's advances in software and hardware, he finds, "mean that SLO is not only a better imaging technique, it has also become the faster and easier retinal imaging solution." The future is for imaging devices that are very easy to operate, can be placed in all kinds of practices, including mobile practices, and function as a standalone system as well as connect seamlessly with hospital networks.

From exclusive to commodity

"The SLO benefits are necessary to cope with the growing demand on healthcare resources. Until recently, SLO devices were not really suitable for clinical use because those older systems had very complicated software and they cost a lot," says Dr. Theelen. "The older lasers were large and energy-hungry and the light emitted was

very lightweight with only 7 kg, and costs around the same as a mid-range fundus camera. "At the same time, those falling component prices and increasing performance mean that the new compact SLO generation offers a lot of the performance of their bigger brethren." Dr. Theelen says. "SLO is still evolving – we are still waiting for a real full-color SLO with red and green and, even better, white light – but even at today's stage I can say that I have not seen any drawbacks. At Radboud, I am leading a program for the automatic detection of several retinal diseases and I would love to implement that on an SLO machine. And color SLO, which I hope to see within the next five years, will be a further major step forward." ■

In short

A new generation of SLO technology is making high-contrast imaging available for clinical practices of all sizes. Two advocates, Dr. Theelen and Prof. Staurengi, believe it will, based on their own experience and studies as well as the rapid innovation of compact SLO technology.

