

Subspecialty – Refractive Surgery



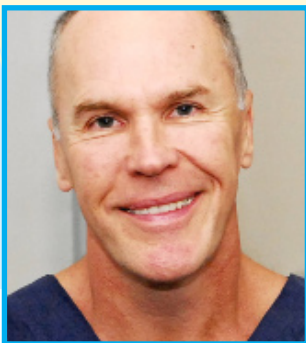
Prof Ronald Krueger (USA)

• Laser Refractive Cataract Surgery

Prof Krueger is Professor of Ophthalmology at the Cleveland Clinic's Cole Eye Institute, USA. At APAO he will give the lead lecture during the International Society of Refractive Surgery (ISRS) session on 'Laser Refractive Cataract Surgery'. Five speakers will address the development and implications of this technology in a round-table panel discussion.

"Femtosecond lasers have changed the way we do things in refractive surgery over the past decade, and are now about to change the way we do cataract surgery as well. Modern day cataract surgery has gone from only secondary attention in refractive outcomes in the past, to refractive cataract surgery with premium lens implants today. Tomorrow will see an improvement in not only the implants we use, but also in the laser technology we use to safely fragment the lens, perform perfectly centred and sized capsulotomies, and ideally create corneal incisions for surgical entry and astigmatism correction."

"The concept for femtosecond laser cataract surgery was first conceived when the author attempted to soften the aging lens that had lost its accommodation with femtosecond laser pulse targeted within the nucleus. The procedure showed promise for restoring accommodation without progressive cataract formation but, because of its complexity, was given a secondary priority in comparison to simple fragmentation of the cataractous lens and precision capsulotomies possible with the laser. The history of this developmental process and the future success and acceptance of this technology will be covered during this session."



Dr Michael A Lawless (Australia)

• Laser Refractive Cataract Surgery

Dr Lawless is a surgeon at Vision Eye Institute, Chatswood (Sydney) and Medical Director of Vision Group. During APAO he will be taking part in the International Society of Refractive Surgery session on laser refractive cataract surgery.

"There is probably no more exciting topic in ophthalmology in 2011. Do we really have a laser mechanism that will make cataract surgery safer and more accurate? If so, it has the potential to improve the most common eye operation in the world, with benefits for individual patients and for society. It won't be easy though, integrating this new technology into our practice lives," says Dr Lawless.

"During the session I will explore the implications for patients, surgeons and for stakeholders such as day surgeries, private health insurers and government. I will be joined by an expert group of international speakers – including Profs Ronald Krueger, Michael Knorz, and Zoltán Zsolt Nagy at the forefront of this technology revolution. The panel discussion will try and tease out the answers for you."



Prof Michael Mrochen (Switzerland)

- **Optical Ray Tracing for Corneal Laser Surgery**

Prof Mrochen, Senior scientist and general management, at the Institute for Refractive and ophthalmic Surgery (IROC) Zurich, Switzerland.

“Current customised excimer laser ablations using laser in situ keratomileusis (LASIK) are based on corneal topography or whole eye wavefront. Such customised ablations have been developed to correct sphero-cylindrical and higher order refractive components. However, the simplified formulae from paraxial optics fail to consider the multiple lens structure of the eye. Optical ray tracing is used to create an ‘individualised eyes’ model of the patient’s eye, and is used to plan a laser ablation profile in two steps: (1) 3-D ray tracing from the retina to the cornea and (2) Iterative calculation of the ideal corneal front surface.”

“An initial multicentre study in Europe demonstrated that the new algorithm – which uses optical ray tracing to calculate highly individualised ablation profiles for LASIK treatment of moderate-to-high myopic astigmatism – is efficacious, safe and predictable.”

Note: All effort has been made to check facts with each presenter. The writer accepts responsibility for any inadvertent errors in transcript.