



Corso 105

Diagnostica Strumentale

Direttore: A. Lucente

Istruttori: L. Di Antonio, A. Lucente, P. Patteri, E. Peiretti, N. Rosa, V. Scorcìa

Imaging Widefield: Caratteristiche e nuove possibilità diagnostiche



www.amedeolucente.it

Disclosure

Consulting Free

- Carl Zeiss Meditec
- Alfa Intes
- Mesofarma srl



Lucien Hove 1848/1928, US
 Hermann von Helmholtz 1821/1894
 Cancelliere della Fisica, Germany

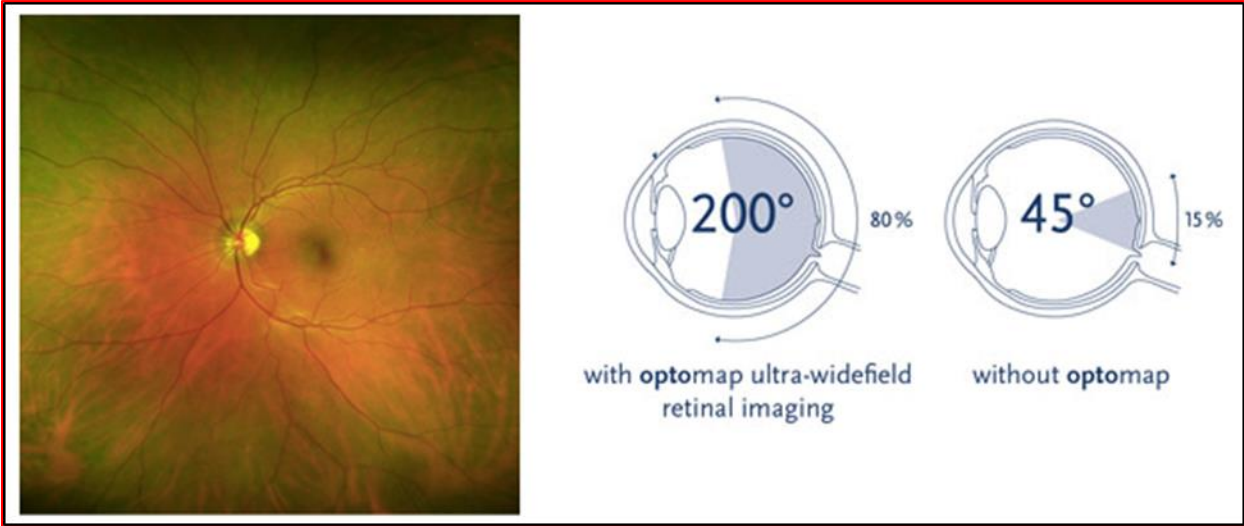
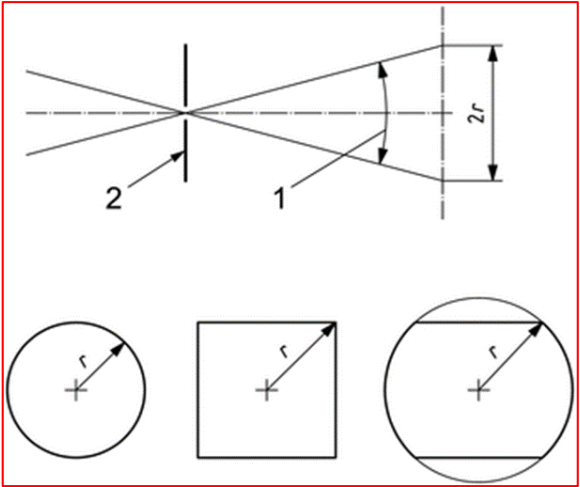
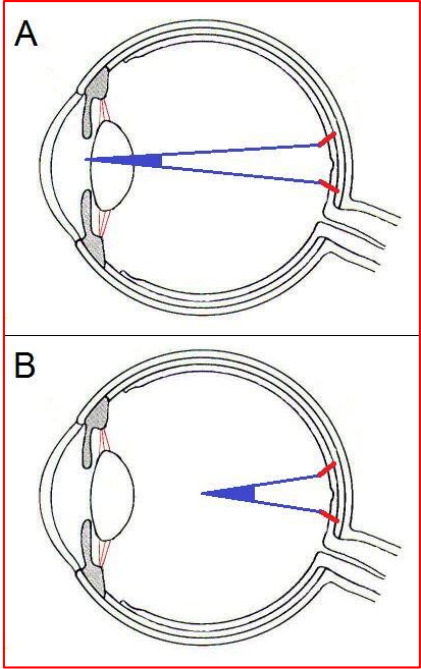


FoV Field of View

FF Retinal Camera Zeiss
 after Nordenson Year 1930
Price \$ 768 f.o.b. N.Y.
 (free on board, New York)

1 \$ 1930 = 76,5 \$
768 \$ x 76,5 \$ ~ 58.752 \$

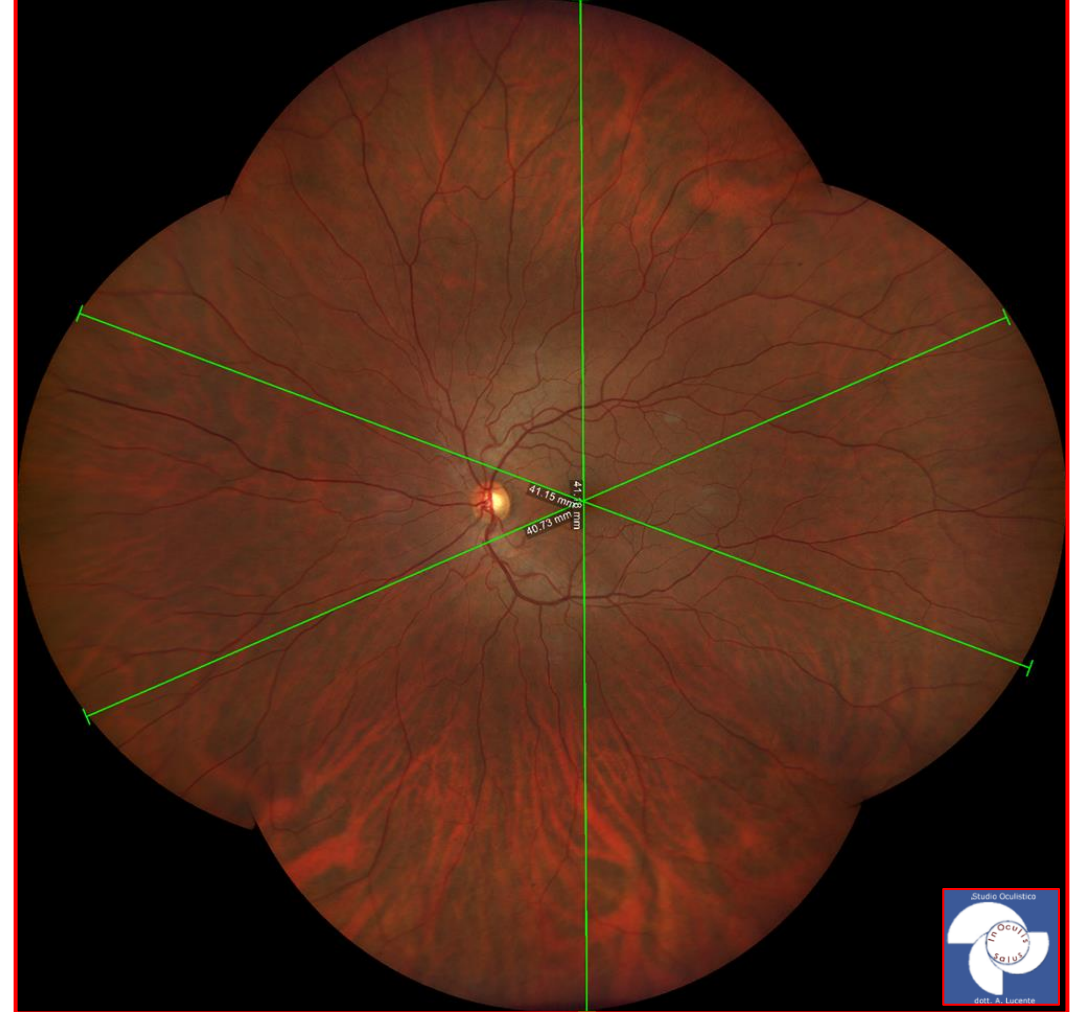
FoV ≥ 50° Widefield Imaging
FoV ≥ 100° Ultra-Widefield Imaging



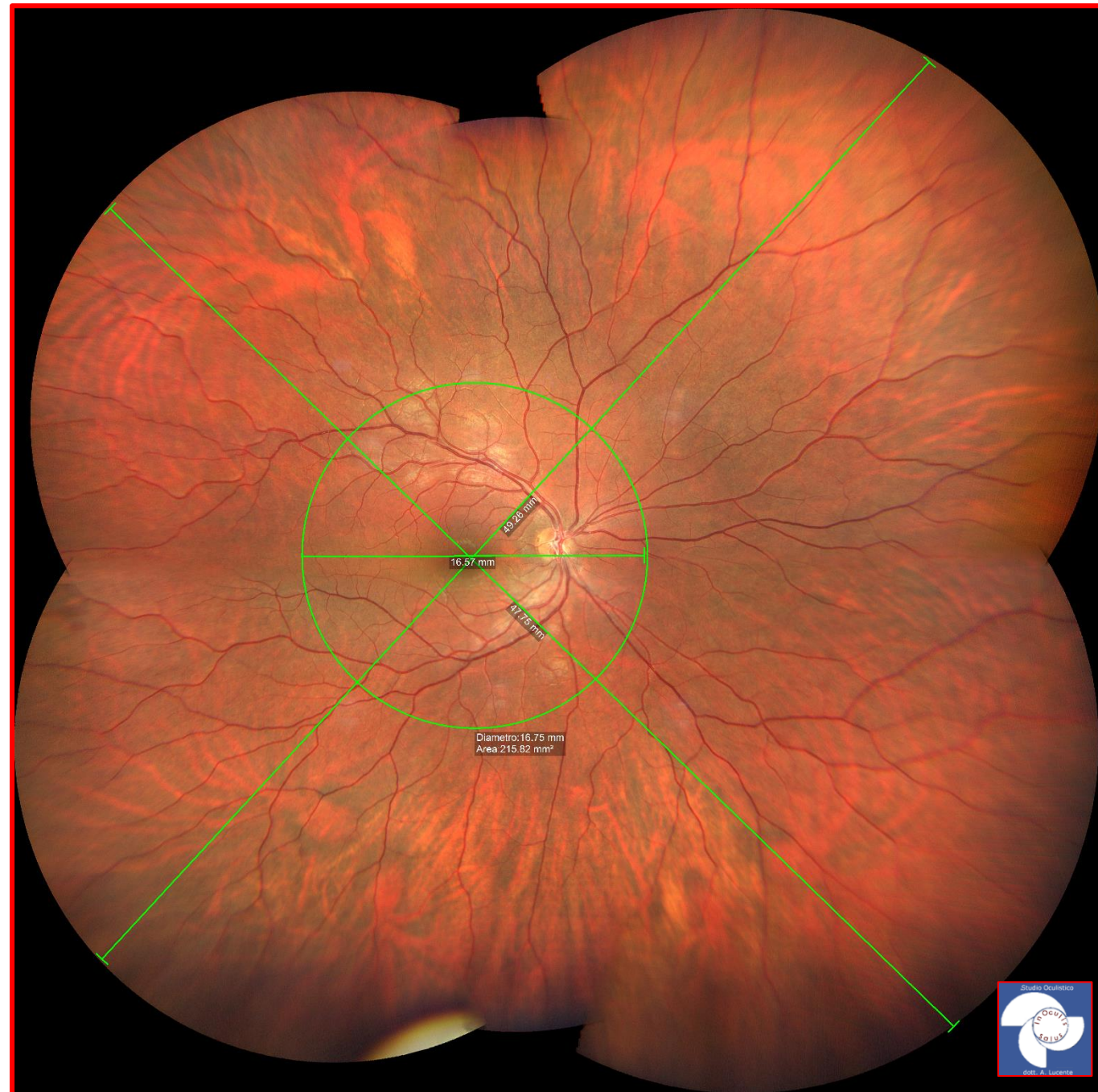
ISO 10940 (International Organization for Standardization)



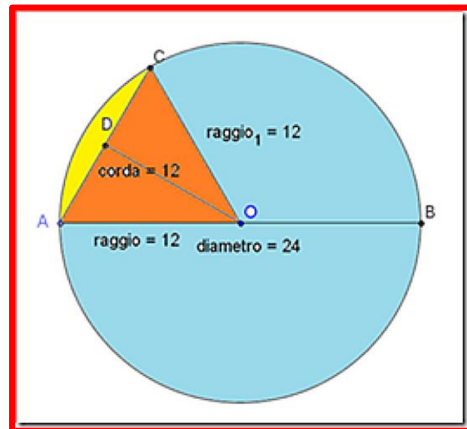
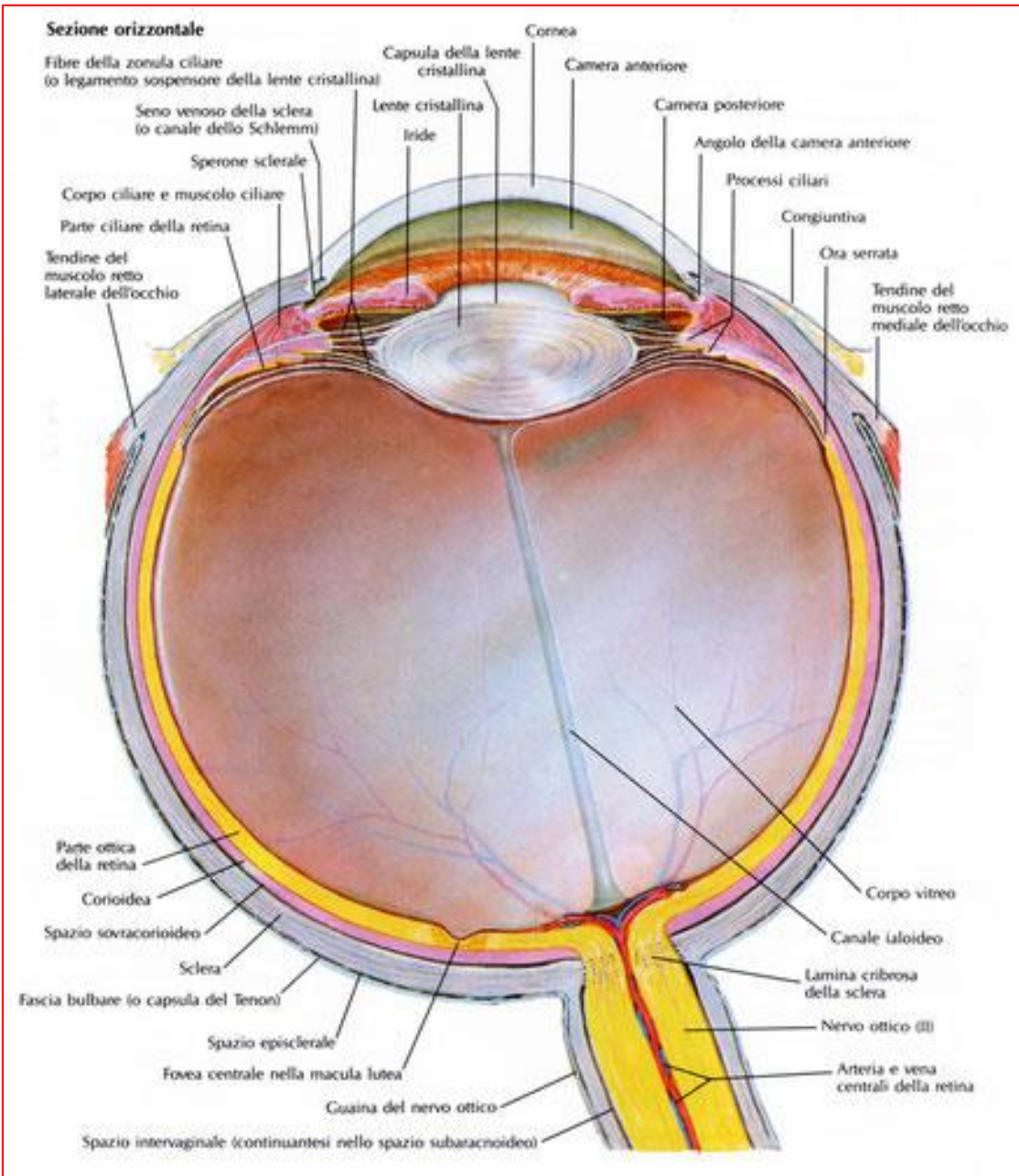
FoV 133° x 133° (out of ISO) occhio emmetrope.
One shot; lunghezza misurabile estremo/estremo
SI/NT ~ **27 mm**



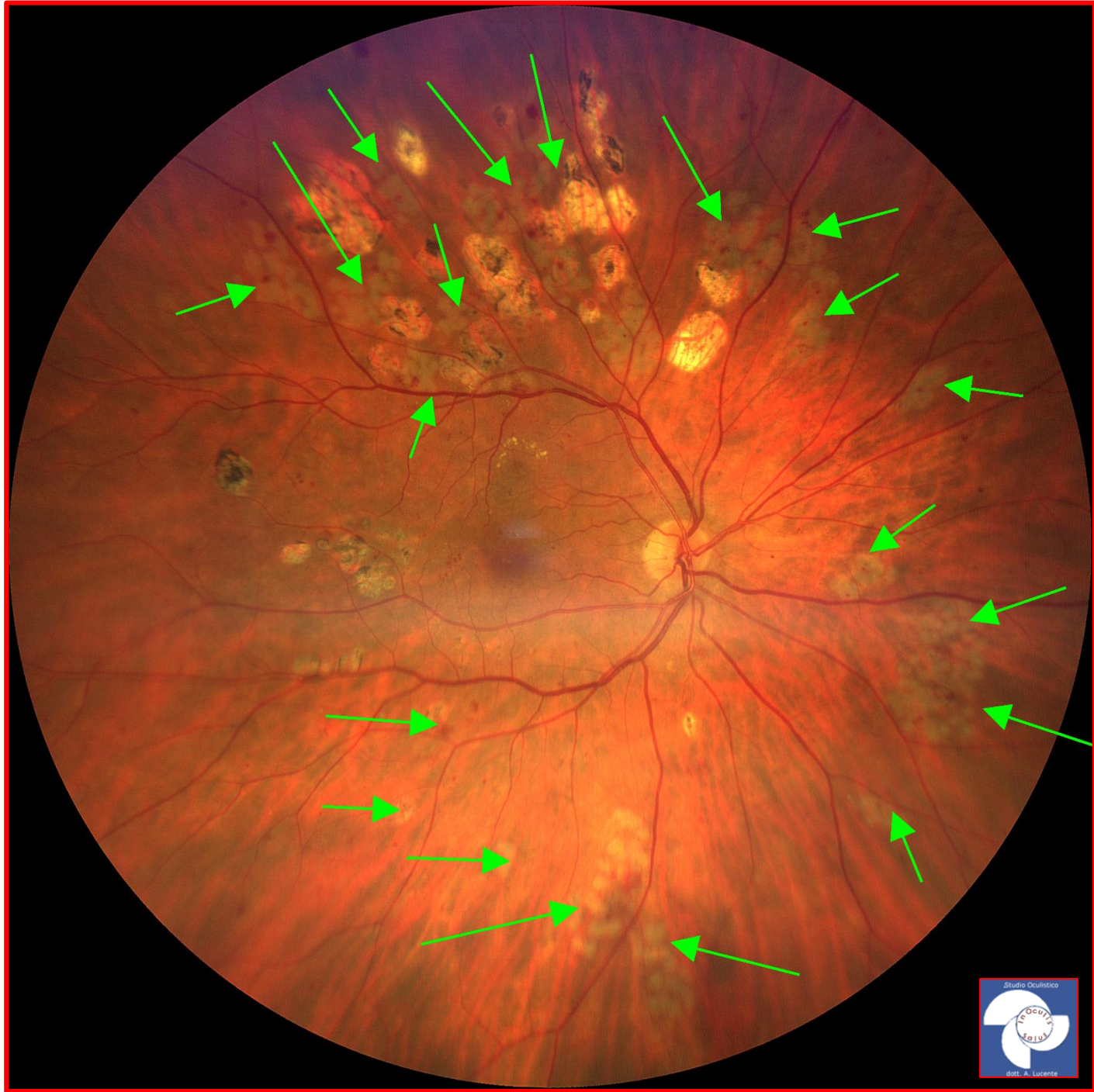
FoV 200° wide by 200° tall (out of ISO) occhio emmetrope.
Four shots montaggio automatico; lunghezza misurabile
estremo/estremo ~ **41 mm**



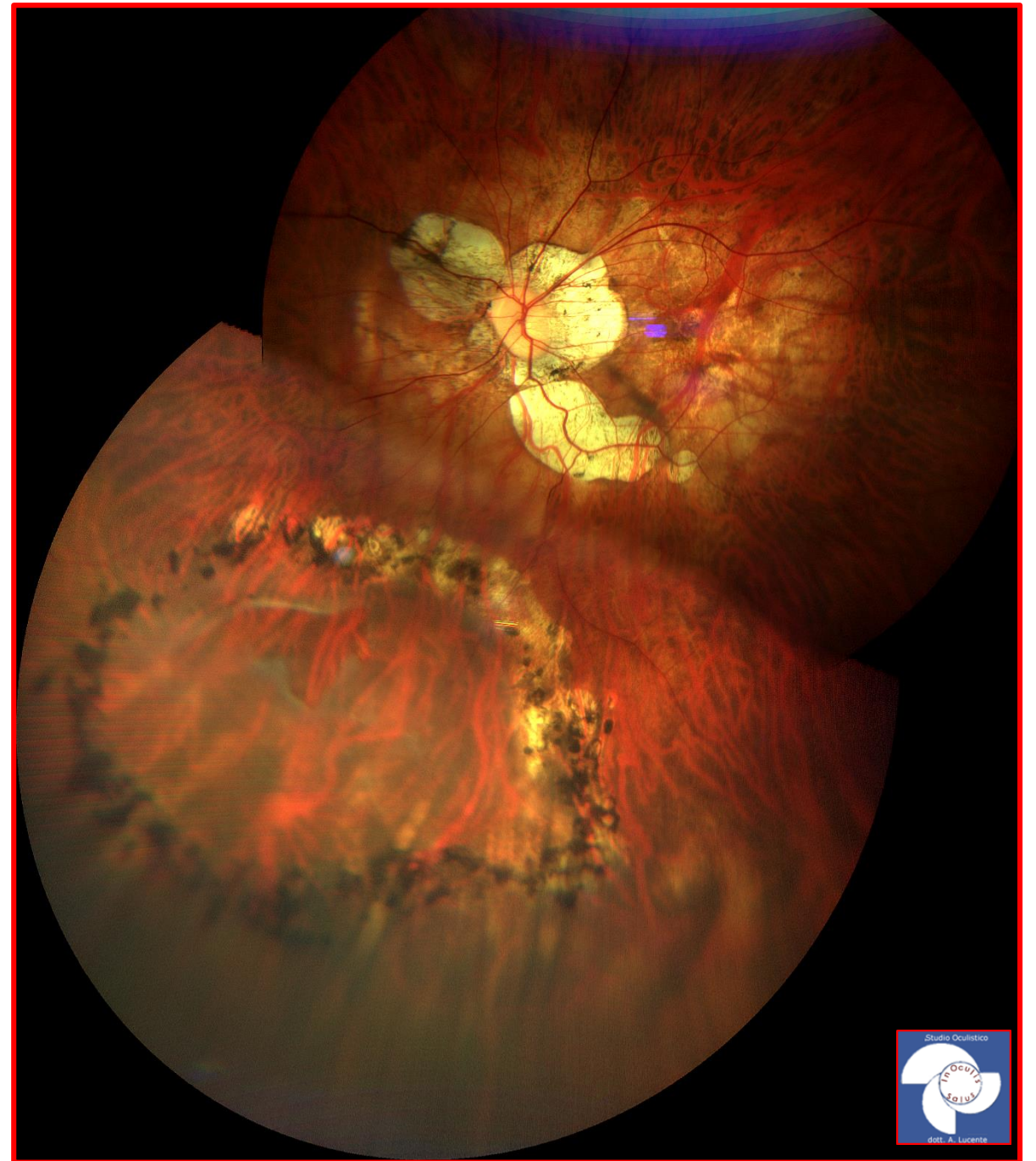
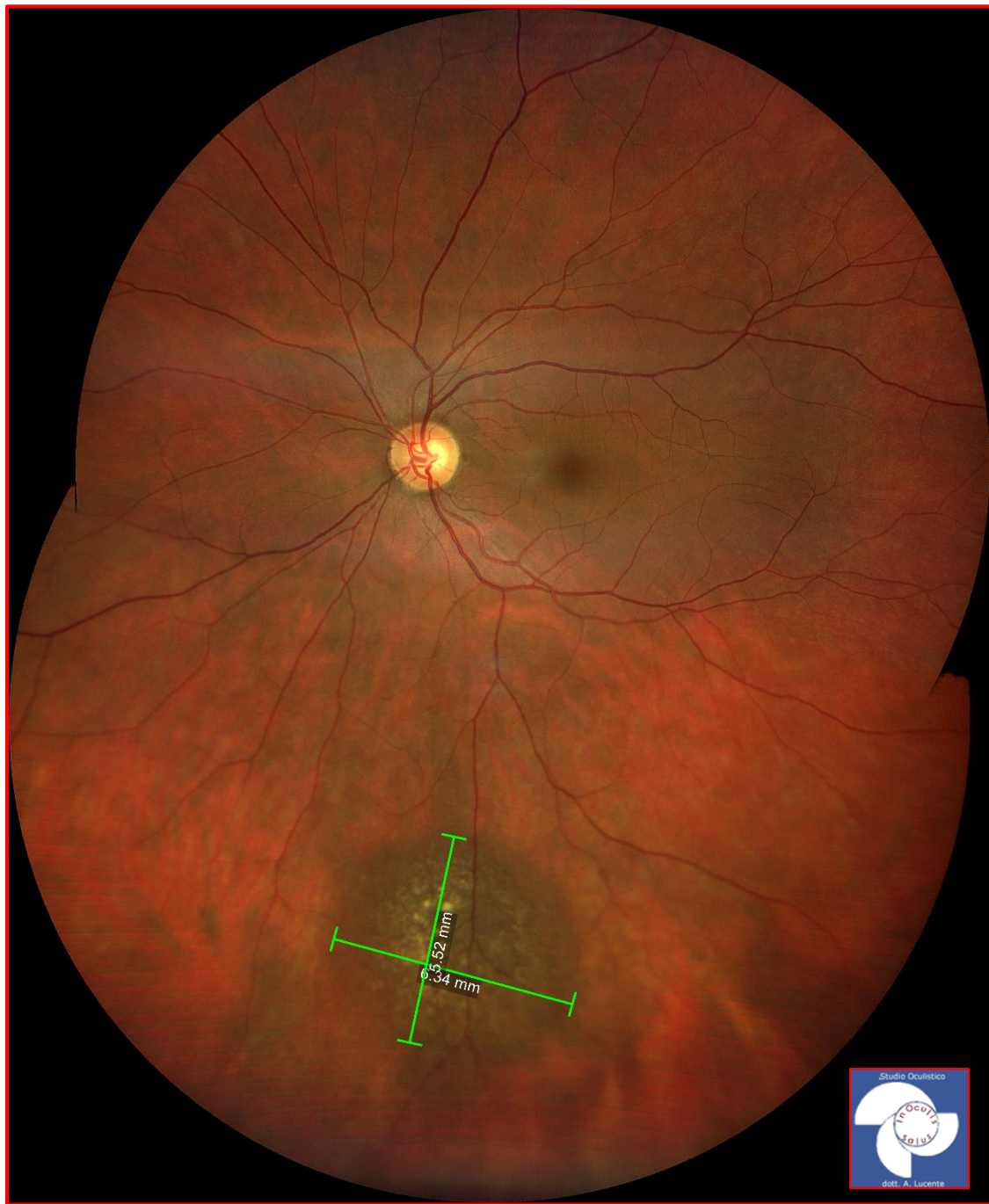
- Montaggio semiautomatico 6 shots
- Cerchio centrale FoV ~ 45°
- Full imaging FoV ~ 267°
- Site to site full imaging ~ 48 mm
- Area full imaging ~ 1500 mm²

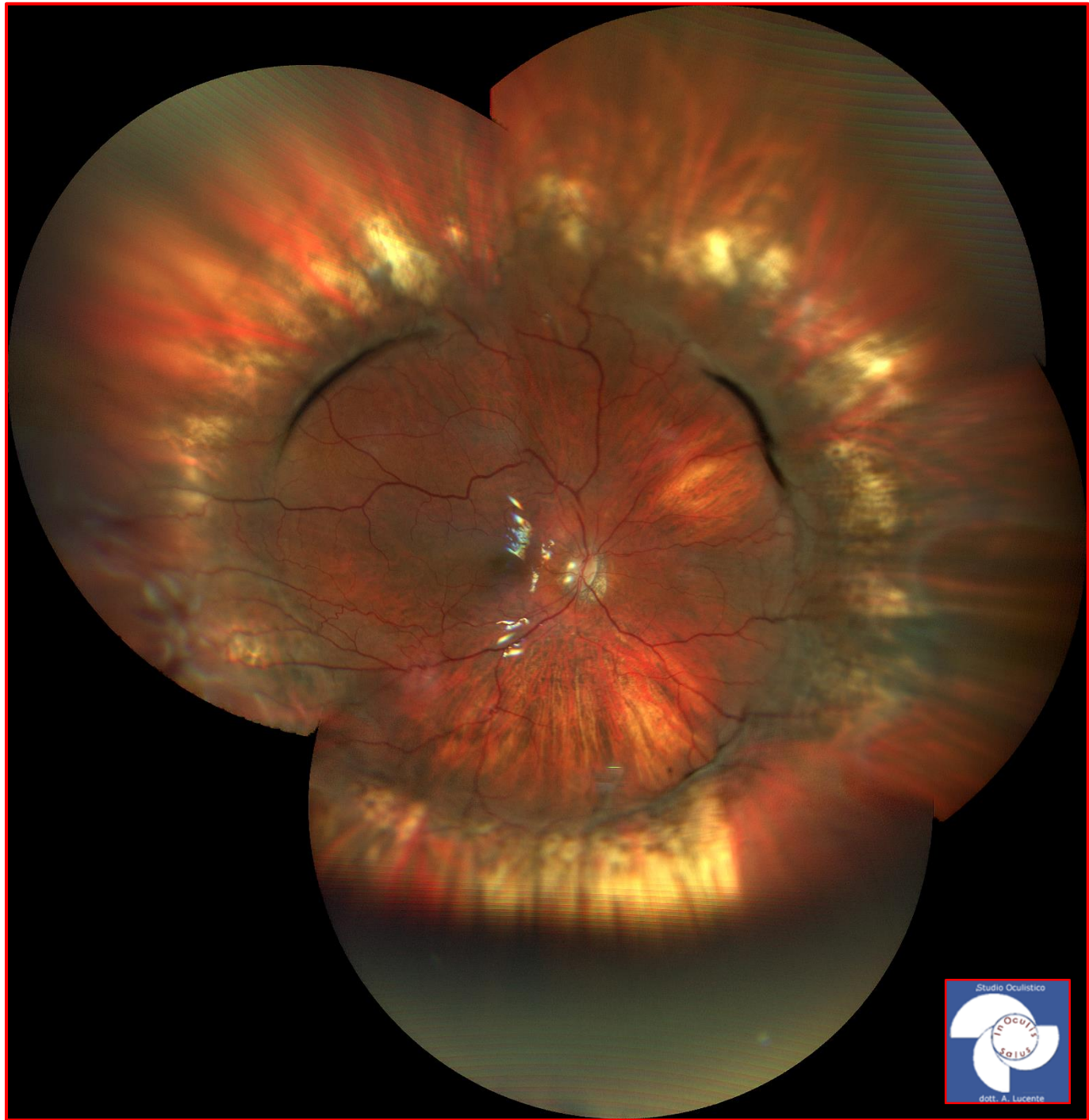


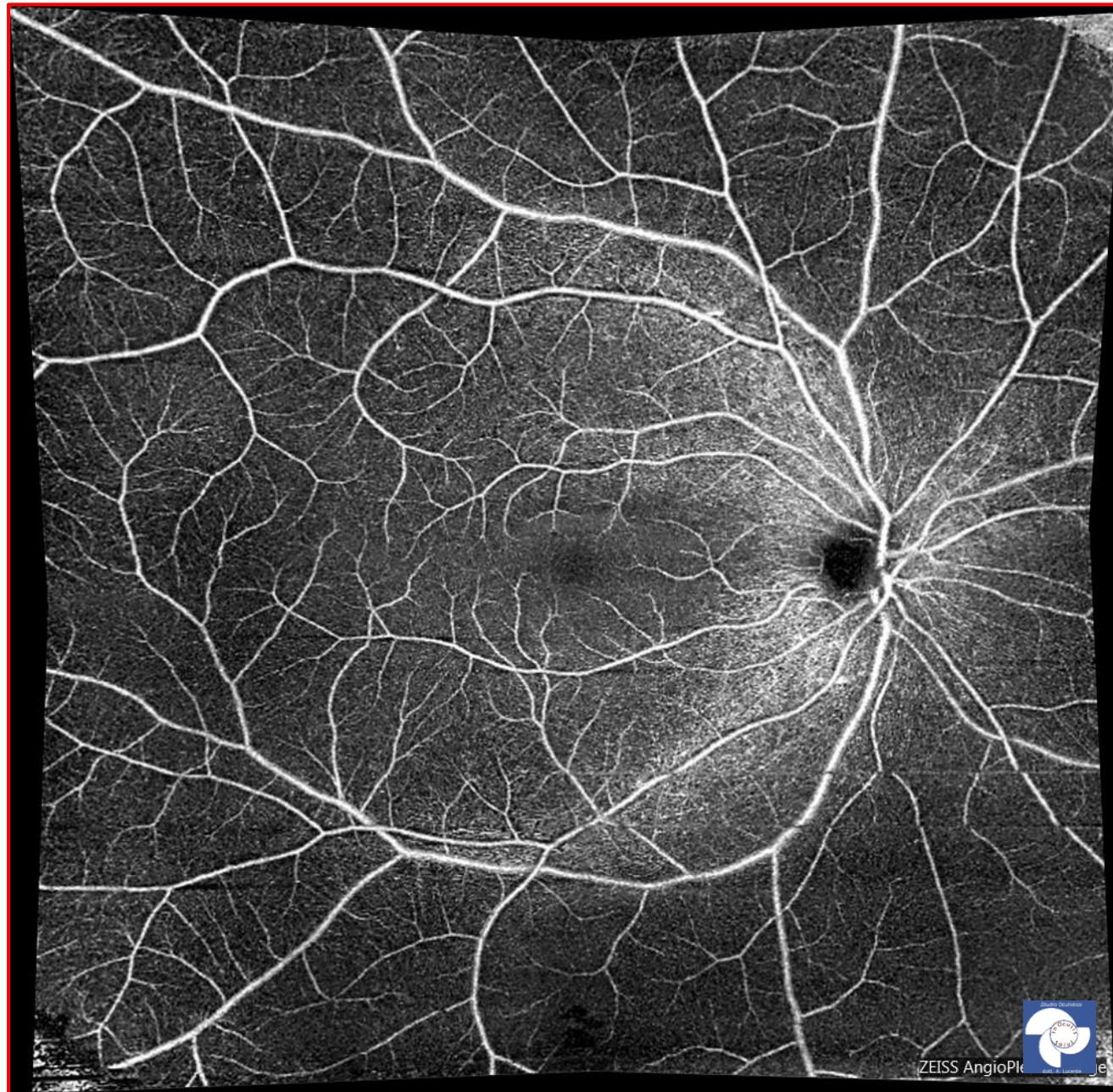
Diametro antero-posteriore ~ 24 mm
 Circonferenza $\sim 2 \pi r = 2 \times 3,14 \times 12$ ~ 75,36 mm
 Corpo Ciliare ~ 6 mm
 Bianco /bianco ~ 12 mm
 Arco corneale sotteso a 12 mm
 $\sim 1/6$ circonferenza (75,36: 6= 12,56) ~ 12,56 mm
 Ora serrata/ora serrata $\sim 12,56 + (6 \times 2)$ ~ 24,56 mm
 Ora serrata/ora serrata internamente
 $75,36 - [12,56 + (6 + 6)]$ ~ 50,8 mm
 Angolo goniometrico settore circolare
 $\sim 24,56 \text{ mm} (75,36 : 360 = 24,56 : x; x \sim 117,32)$ ~ 117,32^\circ
 Una fotografia con FoV di 180^\circ
 copre un'emicirconferenza (75,36/2) ~ 37,68 mm
 Area retinica della sfera con raggio 12 mm
 $= 4 \pi r^2 = 4 \times 3,14 \times 12^2$ ~ 1808 \text{ mm}^2
 Area dell'emisfera = $\frac{1}{2}$ di 1808 mm² ~ 904 \text{ mm}^2







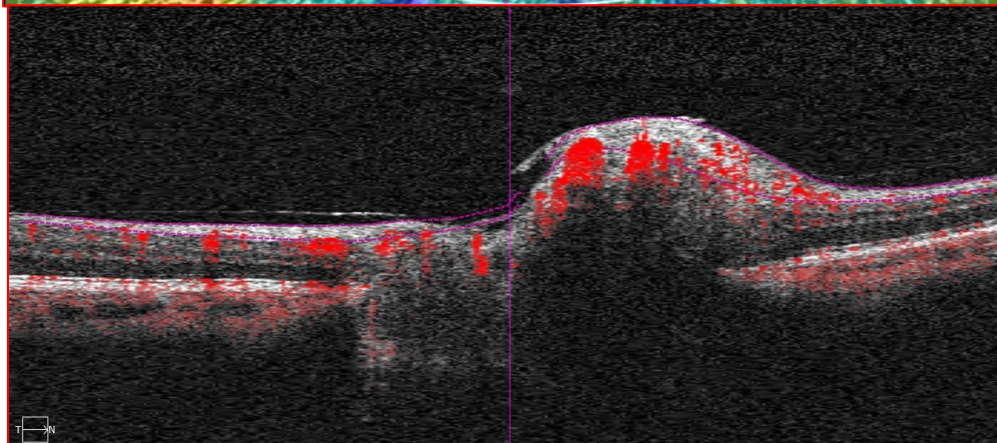
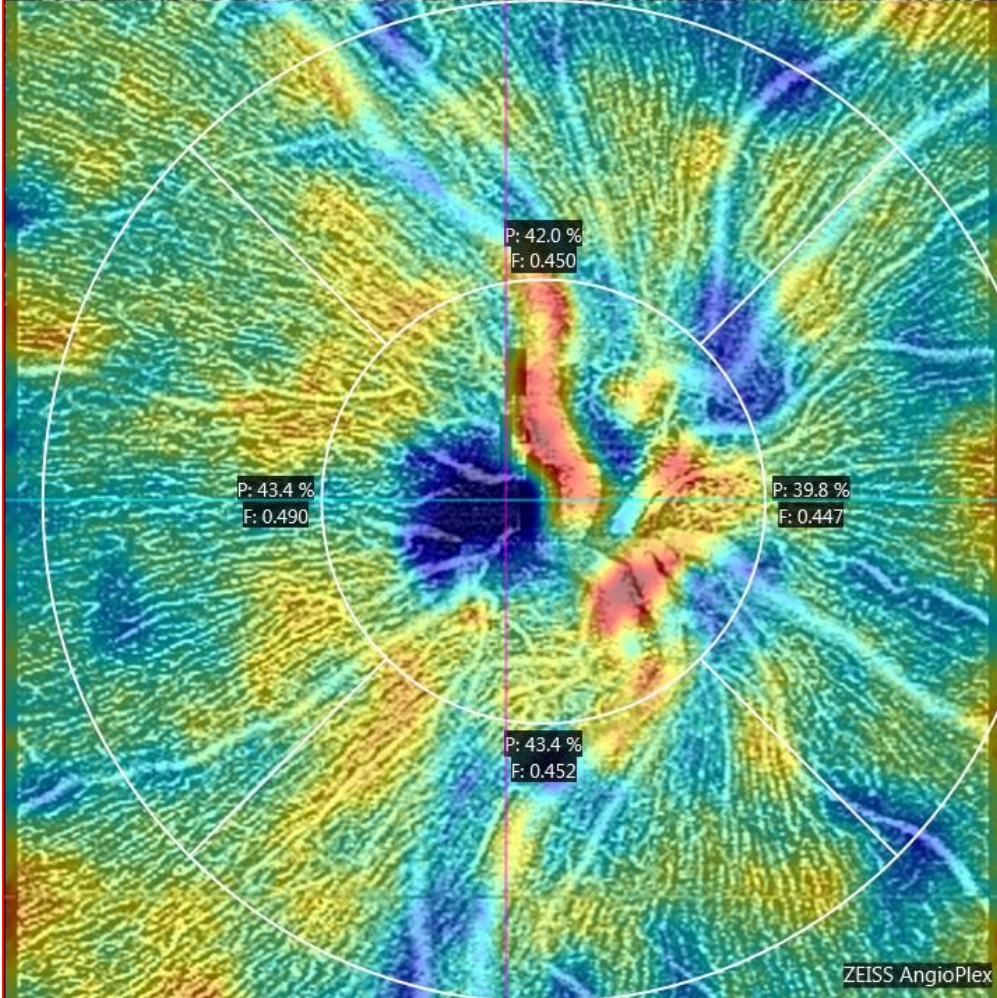




Montage 5 images 8 x 8 mm OCTA ~ 14 mm x 14 mm



Montage 6 images 6 x 6 mm OCTA ~ 10 mm x 14 mm



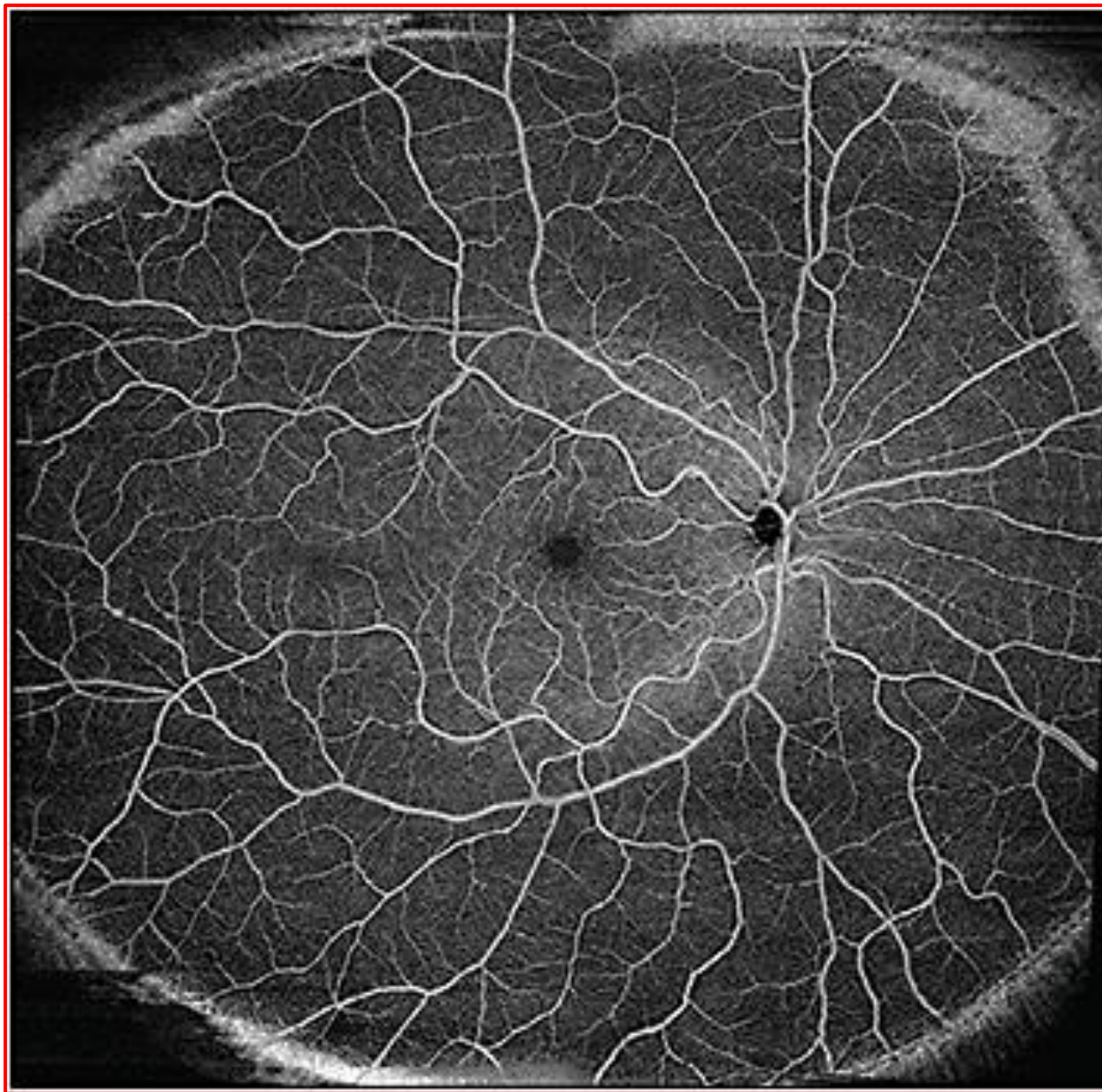
ONH Angiography Analysis:

ONH Angiography

4.5 mm x 4.5 mm

P = Perfusion = Area perfusa/area totale
F = Flux Index = Lunghezza vasi/area totale

Reference: Top ILM
Bottom RNFL



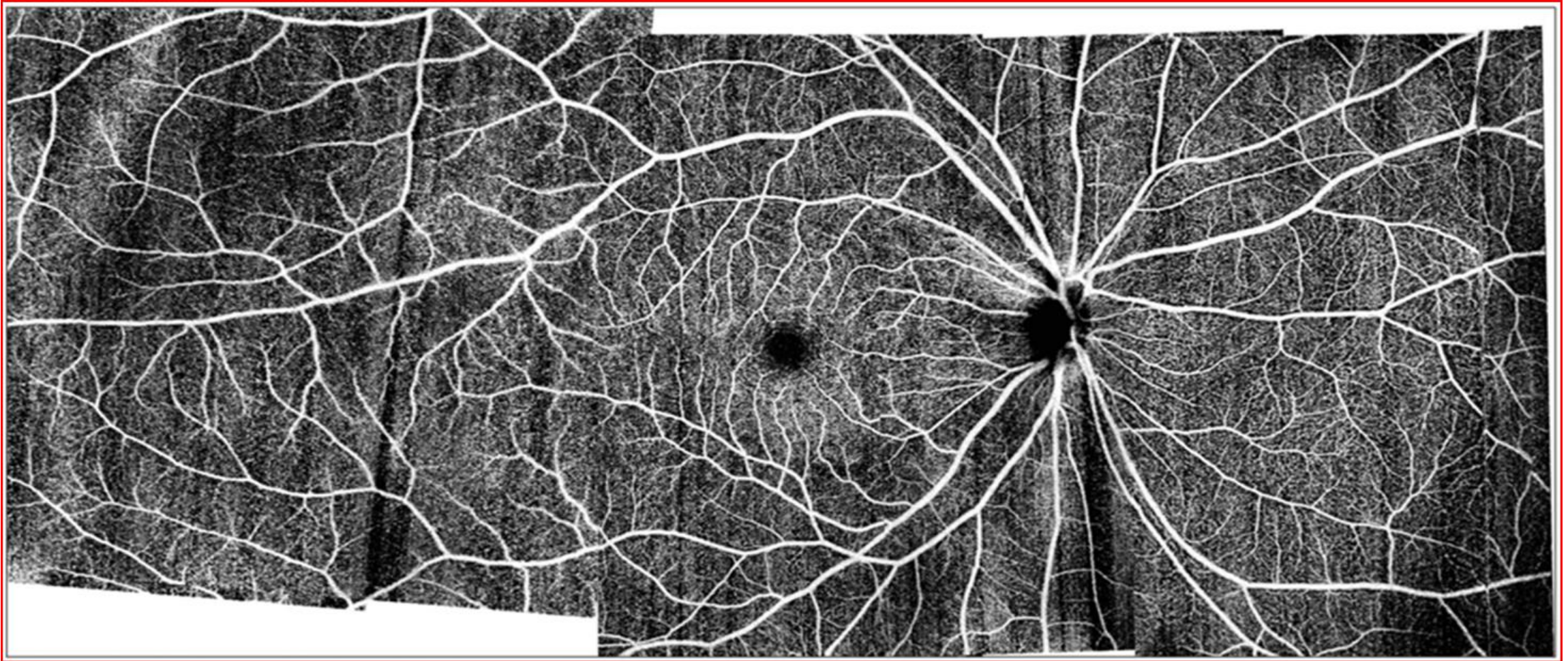
Montage of **12 mm x 12 mm** scans from a normal eye obtained on the swept-source **12 mm x 12 mm**, **5 scans** were obtained, **one centered at the fovea**, and the **other 4 centered at the 4 quadrants** around the fovea.



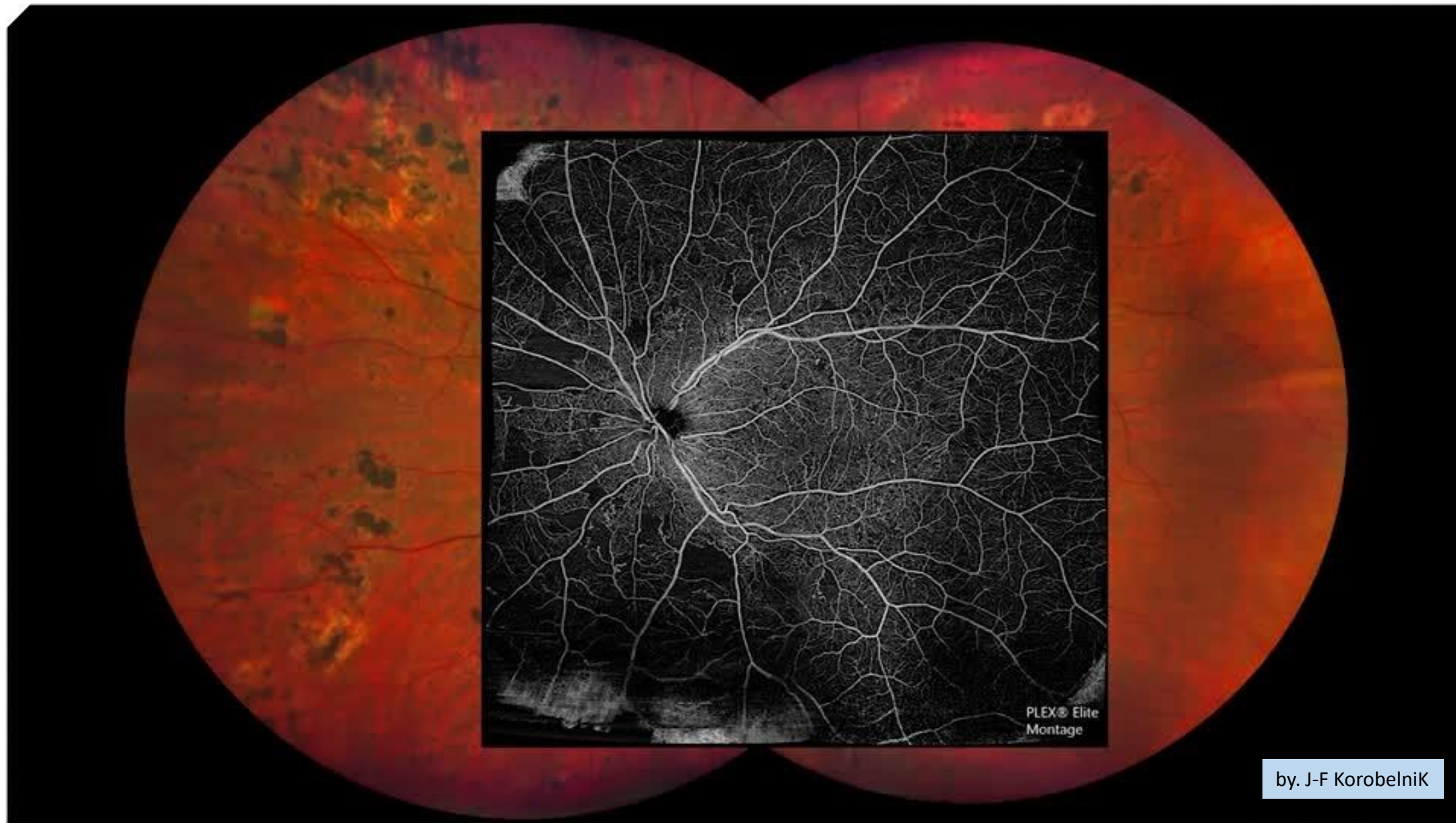
ZEISS receives **the first US FDA Clearance for Swept-Source OCT**. It is a SS-OCT instrument with a tunable laser centered at 1050 nm, a scan speed of 100,000 A-scans/sec at a tissue **depth of 3.0 mm**, and an axial resolution of **6.3 μ m, with a 56° field of view (10 mm x 14 mm)**

Advanced Retina Imaging (A R I) a global consortium (network) of the highest caliber of clinicians and scientists.
President Philip J Rosenfeld, Bascom Palmer Eye Institute, # 1 in USA, Best in Ophthalmology for the 17th Time





Ultra-Widefield OCTA (~20-mm width, 10-mm height, 7-mm depth) 200-kHz Swept-Source OCT System. (by Simon S. Gao et al.)



by. J-F Korobelnik



Società Oftalmologica Italiana
98° CONGRESSO NAZIONALE
da mercoledì 28 novembre a sabato 1 dicembre 2018
Centro Congressi Rome Cavalieri
ROMA...dove si incontrano i protagonisti dell'oftalmologia
150 SOI 1869-2019

Thank you for your kind attention!



www.amedeolucente.it