Nanosecond technology for flap creation

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The aim of this presentation is to share the data of the first lasik series of eyes with flaps created by new Sirama (Schwind) nano / picosecond UV laser platform.
laser: solid state
wavelength: 355 nm (UV range)
pulse frequency: ≤ 300 kHz
pulse duration in picosecond range (10^{-12}s)
pulse energy ≤ 0,3µJ
Sirama (Schwind) picosecond laser platform

Sirama laser can be combined with different excimer lasers
Sirama (Schwind) picosecond laser flap features

- diameter 7 to 10mm (0.1mm steps)
- side cut angle 45° - 105°
- hinge width 2 to 5mm
- hinge position – 360° options
- flap position according to pupil detection
Cutting
22 eyes of 11 patients

1 eye Sirama, second eye LDV (Ziemer)

flap diameter 9,5mm

hinge at 12 o’clock position

Amaris 750s (Schwind) for ablation

myopia -1 to -5 D sf. eq.

BSCVA 0,9 to 1,2
UDVA – Sirama
DCVA – Sirama

![Graph showing DCVA results before and after surgery at 1 week and 1 month post-operation.](image-url)
Sph. Eq. – Sirama

PreOp

1W

1M
Flap boarder immediately postop.
High quality flap edge
Flap thickness

intended: 130µm

achieved: 127 ±6µm
Clear cornea 1st day postop.
Epithelial defects 1\textsuperscript{st} day
Conclusion

- flap separation slightly more difficult
- flap quality excellent
- light sensitivity the first hours after surgery
- 10% of eyes epithelial defects day 1
- Sirama first results promising
Discussion - Sirama potential advantages

- very precise tissue separation
- less collateral tissue damage
- affordable price
- less maintenance cost
Discussion - Sirama limitations

- epithelial injury by UV light after the first series of surgeries

- The manufacturer has meanwhile found ways to avoid any UV light injuries of the epithelium.

- Currently the manufacturer is working on other applications than flap cutting and intrastromal corneal ablation.
Thank you for your attention.