Dr. Sophia Panagopoulou, PhD

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Main Fields of Specialization

- Development and evaluation of innovative applications in refractive surgery for improving visual quality
- Clinical evaluation of new lasers in Ophthalmology
- Design and implementation of clinical studies in refractive surgery using laser technology
- Development of applications with emphasis on “customized laser ablation” through treatments guided by corneal topography and wavefront analyzers
- Evaluation and optimization of established refractive surgery methods (Safety, Effectiveness, Predictability)
- Investigation of laser applications for presbyopia correction combined with modification of ocular optical aberrations
- Development and evaluation of diagnostic data in order to use in therapeutic systems

Curriculum Vitae

Positions and Activities

- 01/2003 – present

Member of Laboratory Teaching Staff (Ε.ΔΙ.Π.) with recognized academic specialization in Lasers in Ophthalmology and Visual Optics, appointed to the Medical School of the University of Crete, Department of Neurology and Sensory Organs, Laboratory of Optics and Vision (LOV).

- 2020 – present

Co-responsible and main lecturer (theory and laboratory exercises) in the undergraduate course Applied Optics in Ophthalmology, Medical School, University of Crete.

- 2023 – present

Academic Coordinator and lecturer of the Continuing Education Program (CET) Advanced mini-Fellowship in Refractive Surgery, University of Crete (KEDIVIM).

- 2021 – present

Teaching in the Continuing Education Program Ophthalmic Optics, Contact Lenses and Visual Perception with topics: Corneal topography: normal vs. irregular cornea; Correcting presbyopia with surgical techniques.

- 2016 – present

Invited speaker and member of the scientific committee at the educational seminar Basic Optics of Vision of the European Society of Cataract and Refractive Surgery (ESCRS), summer and winter congresses, on topics: Corneal Topography and Tomography, Femtosecond Laser in Ophthalmology, Visual Acuity, Contrast Sensitivity, Binocular Vision and Stereopsis.

- 2016 – present

Author and trainer in the subject Eye Imaging at the ESCRS Visual Optics Suite (ilearn), covering topics of ocular imaging and visual quality assessment.

- 2015 – 2016

Responsible for the thematic unit New Generation Lasers in Ophthalmology and their Applications and lecturer in the Continuing Education Program Diagnostic and Therapeutic Approaches in the 21st Century – New Techniques in Ophthalmology, Medical School, University of Crete.

- 2003 – 2020

Committee member and thematic unit coordinator in the Interdepartmental Postgraduate Program Optics and Vision, University of Crete. Teaching activities included lectures and laboratories on:

- Excimer and fs-Lasers in Refractive Surgery
- Lasers in Ophthalmology
- Corneal Topography and Tomography
- Optical Coherence Tomography (OCT)
- Wavefront Analysis, Aberrometers
- Customized treatments with topography-guided laser
- Assessment of Visual Acuity, Contrast Sensitivity, and Binocular Vision

- Supervision of postgraduate theses on topics such as Excimer Laser ablation profiles, accommodative response before and after refractive surgery, comparison of aberrometers, and optical wavefront errors in presbyopic vs. emmetropic eyes.
- 01/2001 – 12/2002

Educational work on clinical applications with Carl Zeiss Meditec AG systems, Germany.

- Design and implementation of clinical studies in refractive surgery with lasers
- Development of applications emphasizing customized ablation with topography- and wavefront-guided protocols
- Presentation of clinical results at international and national symposia.
- 1995 – present

Support of refractive laser applications at the Laboratory of Optics and Vision (LOV).

- Determination of optimal treatment parameters
- Collection and processing of postoperative data
- Instructor in Refractive Surgery Mini-Fellowships for residents and ophthalmologists
- Participation in various research projects focusing on refractive surgery and visual quality
- Data collection during FDA study for Excimer Laser LadarVision
- Technical support for Excimer/femtosecond laser systems at LOV.
- 2000 – present

Active participation in international ophthalmology conferences (ESCRS, ASCRS, Aegean Cornea, HSOIRS) presenting research results as invited speaker and trainer.

- 2023 – present

Representative member of Laboratory Teaching Staff (Ε.ΔΙ.Π.) in the General Assembly of the Department of Neurology and Sensory Organs, Medical School, University of Crete.

- 2021 – present

Participation in annual educational visits within the collaboration program between the Medical School and Secondary Education (presentation of the Laboratory of Optics and Vision). Brain Awareness Week.

Education

- 12/2005

PhD, Medical School, University of Crete, Heraklion, Greece

Dissertation: Development of a mathematical model for the change in corneal shape during photorefractive keratectomy with Excimer Laser

- 1993

BSc in Physics, University of Crete, Heraklion, Greece

Thesis: Automatic system for measuring I/V curves in photovoltaic cells

- 06/1988

High School Diploma with distinction, Karatoula Pyrgos, Ilia, Greece

Languages

- Greek: Native
- English: Excellent (University of Michigan – CEFR C2)
- German: Intermediate
- French: Intermediate

IT Skills

- Software: MS Office, SPSS, Endnote, etc.
- Operating Systems: Microsoft Windows

Professional Certifications / Licenses

Lasers:

- Aesculap MEL 60 ArF Excimer Laser
- Aesculap MEL 70 ArF Excimer Laser
- Wavelight Allegretto ArF Excimer Laser

- Visum Microscan 1000Hz
- Wavelight FS200 Femtosecond
- MEL-90 ArF 500Hz
- AMO iFS Femtosecond Laser System 150 KHz

Topographers / Tomographers (Scheimpflug – OCT):

- EyeSys 2000
- TechnoMed C-Scan
- Orbtech Orbscan
- TOMEY TMS 2N
- Topolyzer Analyzer
- Ziemer Galilei (Placido/Scheimpflug)
- Visante OCT
- Pentacam

Wavefront Analyzers:

- COAS Wavefront Analyzer
- WAVE Analyzer
- Tracey Ray-Tracing
- Visionix VX120

Publications

- 43 publications in peer-reviewed journals with 1,363 citations and h-index = 21 (as of 01/2025, Scopus).

1. Longitudinal changes in objective accommodative response, pupil size and spherical aberration: A case study. Plainis, S., Panagopoulou, S., Charman, W.N. Ophthalmic and Physiological Optics ,2024, 44(1), pp. 168–176

2. Optical Biometry Derived Axial Length Measurements Following Intravitreal Anti-Vascular Endothelial Growth Factor Treatment for Macular Edema. Kymionis, G.D., Giarmoukakis, A., Apostolidi, I.K.,Panagopoulou, S., Tsilimbaris, M.K. Seminars in Ophthalmology 2018, 33(4), pp. 488–491

3. Pupil response to tropicamide following corneal crosslinking. Kymionis, G.D., Paraskevopoulos, T.A., Liakopoulos, D.A., ... Panagopoulou S.I.,Mazzotta, C., Detorakis, E.T. European Journal of Ophthalmology 2016, 26(5), pp. 394–397

4. Uneventful femtosecond laser assisted flap creation in a patient with postoperative PRK corneal haze. Kymionis, G.D., Liakopoulos, D.A., Grentzelos, M.A., Skatharoudi, C.A., Panagopoulou, S.I. Journal of Refractive Surgery 2015, 31(9), pp. 638–639

5. PresbyLASIK approach for the correction of presbyopia. Pallikaris, I.G., Panagopoulou, S.I. A review. Current Opinion in Ophthalmology, 2015, 26(4), pp. 265–272

6. Refractive surgery following corneal graft. Pallikaris, I.G., Panagopoulou, S.I. Current Opinion in Ophthalmology, 2015, 26(4), pp. 278–287

7. Ocular higher-order aberrations in a school children population. Papamastorakis, G., Panagopoulou, S.I., Tsilimbaris, M.K., Pallikaris, I.G., Plainis, S. Journal of Optometry, 2015, 8(2), pp. 93–100

8. Long-term visual outcomes after Crystalens® HD intraocular lens implantation. Karavitaki, A.E., Pallikaris, I.G., Panagopoulou, S.I., ...Kontadakis, G., Kymionis, G.D. Clinical Ophthalmology, 2014, 8, pp. 937–943

9. Outcomes after accommodative bioanalogic Intraocular Lens implantation. Pallikaris, I.G., Portaliou, D.M., Kymionis, G.D., Panagopoulou, S.I., Kounis, G.A. Journal of Refractive Surgery, 2014, 30(6), pp. 402–406

10. Refractive corneal inlay for near vision improvement after cataract surgery. Stojanovic, N.R., Panagopoulou, S.I., Pallikaris, I.G. Journal of Cataract and Refractive Surgery, 2014, 40(7), pp. 1232–1235

11. Femtosecond laser-assisted intracorneal biopolymer insertion for the symptomatic treatment of bullous keratopathy. Kymionis G.D., Diakonis V.F., Kankariya V.P., Plaka A.D., Panagopoulou S.I., Kontadakis G.A., Grentzelos M.A., Tsilimbaris M.K., Pallikaris I.G., Cornea 2014, 33(5) 2773740

12. Comparative study of stromal bed of LASIK flaps created with femtosecond lasers (IntraLase FS150, WaveLight FS200) and mechanical microkeratome. Kymionis G.D., Kontadakis G.A., Naoumidi I., Kankariya V.P., Panagopoulou S.I., Manousaki A., Grentzelos M.A., Pallikaris I.G. British Journal of Ophthalmology,2014,98(1)

13. Thin-flap laser in situ keratomileusis with femtosecond-laser technology. Kymionis G.D., Kontadakis G.A., Grentzelos M.A., Panagopoulou S.I., Stojanovic N., Kankariya V.P., Henderson B.A., Pallikaris I.G. Journal of Cataract and Refractive Surgery, 2013 ,39(9)

14. Visual outcomes and safety of a refractive corneal inlay for presbyopia using femtosecond laser. Limnopoulou A.N., Bouzoukis D.I., Kymionis G.D., Panagopoulou S.I., Plainis S., Pallikaris A.I., Feingold V., Pallikaris I.G. Journal of Refractive Surgery,2013,29(1)

15. Combined transepithelial phototherapeutic keratectomy and corneal collagen cross-linking for progressive keratoconus. Kymionis G.D., Grentzelos M.A., Kounis G.A., Diakonis V.F., Limnopoulou A.N., Panagopoulou S.I. Ophthalmology, 2012,119(9)

16. Unilateral sulcus implantation of the crystalens HD. Pallikaris I.G., Karavitaki A.E., Kymionis G.D., Kontadakis G.A., Panagopoulou S.I., Kounis G.A. Journal of Refractive Surgery,2012,28(4)

17. Visual outcomes and safety of a small diameter intrastromal refractive inlay for the corneal compensation of presbyopia. Bouzoukis D.I., Kymionis G.D.,

Panagopoulou S.I., Diakonis V.F., Pallikaris A.I., Limnopoulou A.N., Portaliou D.M., Pallikaris I.G. Journal of Refractive Surgery,2012,28(3)

18. Corneal collagen cross-linking with riboflavin and ultraviolet-a irradiation in patients with thin corneas. Kymionis G.D., Portaliou D.M., Diakonis V.F., Kounis G.A., Panagopoulou S.I., Grentzelos M.A. American Journal of Ophthalmology,2012,153(1)

19. Long-term results of phakic refractive lens implantation in eyes with high myopia. Portaliou D.M., Kymionis G.D., Panagopoulou S.I., Kalyvianaki M.I., Grentzelos M.A., Pallikaris I.G. Journal of Refractive Surgery,2011,27(11)

20. Management of post laser in situ Keratomileusis ectasia with simultaneous Topography Guided Photorefractive Keratectomy and Collagen Cross-Linking,"Kymionis G.D., Portaliou D.M., Diakonis V.F., Karavitaki A.E., Panagopoulou S.I., Jankov M.R., Coskunseven E.", 18743641, Open Ophthalmology Journal, 2011,5

21. Interface corneal stromal irregularities after flap creation using femtosecond laser.,"Kymionis G.D., Kounis G.A., Grentzelos M.A., Panagopoulou S.I., Kandarakis S.A., Krasia M.S." ,17246016, European journal of ophthalmology,2011,21(2)

22. Unintended epithelium-only flap creation using a femtosecond laser during LASIK,"Kymionis G.D., Portaliou D.M., Krasia M.S., Karavitaki A.E., Grentzelos M.A., Panagopoulou S.I., Kounis G.A., Pallikaris I.G.",1081597X,Journal of Refractive Surgery, 2011,

23. Kymionis, G.D., Diakonis, V.F. Panagopoulou, S.I., Grentzelos, M.A., Kazakos, D.C., Tzatzarakis, M.N., Tsatsakis, A.M., Pallikaris, A.I. Mitomycin C aqueous humor concentration after photorefractive keratectomy: An experimental study. European Journal of Ophthalmology Volume 19, Issue 5, 2009, Pages 738-742

24. George D. Kymionis, MD, PhD; Dimitra M. Portaliou, MD; Nikolaos S. Tsiklis, MD, MSc; Sophia I. Panagopoulou, PhD; Ioannis G. Pallikaris, MD, PhD 2009. Thin LASIK Flap Creation Using the SCHWIND Carriazo-Pendular Microkeratome Journal of Refractive Surgery Vol. 25 No. 1 January 2009

25. Kalyvianaki M.I., Kymionis G.D., Kounis G.A., Panagopoulou S.I., Grentzelos M.A., Pallikaris I.G.2008. Comparison of Epi-LASIK and Off-Flap Epi-LASIK for the Treatment of Low and Moderate Myopia Ophthalmology (115)12

26. Tsiklis N.S., Kymionis G.D., Pallikaris A.I., Diakonis V.F., Ginis H.S., Kounis G.A., Panagopoulou S.I., Pallikaris I.G.2007. Endothelial cell density after photorefractive keratectomy for moderate myopia using a 213 nm solid-state laser system.Journal of Cataract and Refractive Surgery (33),11

27. Kymionis G.D., Tsiklis N.S., Astyrakakis N., Pallikaris A.I., Panagopoulou S.I., Pallikaris I.G.2007. Eleven-year follow-up of laser in situ keratomileusis Journal of Cataract and Refractive Surgery (33),2

28. Jankov II M.R., Panagopoulou S.I., Tsiklis N.S., Hajitanasis G.C., Aslanides I.M., Pallikaris I.G.2006 Topography-guided treatment of irregular astigmatism with the wavelight excimer laser Journal of Refractive Surgery(22),4

29. Panagopoulou SI, Neal DR. 2005. Zonal matrix iterative method for wavefront reconstruction from gradient measurements. *Journal of Refractive Surgery* 21

30. Kalyvianaki MI, Pallikaris IG, Kymionis GD, Panagopoulou SI. 2004. Phakic refractive lens implantation in high myopic patients: One-year results. *Journal of Cataract and Refractive Surgery* 30: 1190-7

31. Kymionis GD, Pallikaris IG, Panagopoulou SI, et al. 2004. Topographically supported customized ablation for the management of decentered laser in situ keratomileusis. *American Journal of Ophthalmology* 137: 806-11

32. Naoumidi TL, Pallikaris IG, Panagopoulou SI, et al. 2003. Conductive keratoplasty for low to moderate hyperopia: 1-Year results. *Journal of Refractive Surgery* 19: 496-506

33. Pallikaris IG, Kymionis GD, Panagopoulou SI, et al. 2002. Induced optical aberrations following formation of a laser in situ keratomileusis flap. *Journal of Cataract and Refractive Surgery* 28: 1737-41

34. Pallikaris IG, Katsanevaki VJ, Panagopoulou SI. 2002. Laser in situ keratomileusis intraoperative complications using one type of microkeratome. *Ophthalmology* 109: 57-63

35. Lydataki S, Lesniewska E, Tsilimbaris MK, Panagopoulou SI.et al. 2002. Excimer laser ablated cornea observed by atomic force microscopy. *Single Molecules* 3: 141-7

36. Panagopoulou SI, Pallikaris IG. 2001. Wavefront customized ablations with the WASCA Asclepion workstation. *Journal of Refractive Surgery* 17

37. Pallikaris IG, Panagopoulou SI, Siganos CS, Molebny VV. 2001. Objective measurement of wavefront aberrations with and without accommodation. *Journal of Refractive Surgery* 17

38. Pallikaris IG, Panagopoulou SI, Molebny VV. 2000. Clinical experience with the Tracey Technology wavefront device. *Journal of Refractive Surgery* 16

39. Molebny VV, Panagopoulou SI, Molebny SV, et al. 2000. Principles of ray tracing aberrometry. *Journal of Refractive Surgery* 16

40. Molebny VV., I. G. Pallikaris, S. I. Panagopoulou, I. H. Chyzh, V.M. Sokurenko *1999* PhO '99 Conference: *Eye Refraction Distribution: Studies with Tracey-1*V.

41. I. G. Pallikaris, S. I. Panagopoulou, University of Crete, Greece, V. V. Molebny, I. H. Chyzh, S. V. Sokurenko,*1999* Retina ray tracing with laser: clinical results. Conference on Laser Radar Technology and Applications. Kiev-AeroSense Partner Conference October 6, 1999, [AS-37]

42. S.I. Panagopoulou, P.V. Kapoulas, A.G. Margaritis, I.G. Pallikaris 1996 ARVO "Modification of Topographic maps for the estimation of PRK outcome using the Aesculap - Meditec Mel-60 Excimer Laser Inv.Ophthalmol Vis Sci, 37(3): 2643

43. Tsiknakis M.N., Chronaki C.E., Tsilimbaris M.K., Panagopoulou S.I., Orphanoudakis S.C., Pallikaris I.G. 1996. A multimedia integration methodology through the meta patient record concept in a cornea outpatient clinic. Inv. Ophthalmol. Vis Sci, 37(3).

Book Chapters

- Co-author of Chapter 2 in Art of LASIK, SLACK Incorporated
- Co-author of Chapter 3 in Quest for Super Vision, SLACK Incorporated

Reviewer in Scientific Journals

- Journal of Cataract and Refractive Surgery
- Journal of Refractive Surgery

Erasmus Programs

- June 30 – July 14, 2014: Erasmus staff training program, Professor Pablo Artal, University of Murcia, Laboratory of Optics, Spain
- November 3 – 11, 2014: Erasmus teaching program, University of Manchester, Faculty of Biology, Medicine and Health, Department of Optometry.