MING WANG, M.D., PH.D

www.wangvisioninstitute.com
drwang@wangvisioninstitute.com

POSITION:

Director, Wang Vision Institute
1801 West End Ave, Ste 1150, Nashville, TN, 37203, USA
615-321-8881(O), 615-321-8874(fax)

Attending surgeon, Saint Thomas Hospital

Clinical Associate Professor of Ophthalmology
University of Tennessee

Medical Director of Refractive Surgery, Aier Eye Hospital Group, and International President of Shanghai Aier Eye Hospital, PR China

***DEGREES*:**

M.D. (*Magna cum laude)*
Harvard Medical School and
Massachusetts Institute of Technology
Division of Health Science and Technology
Cambridge, MA
June, 1991

Postdoctoral
MIT/Harvard, 1987-1988;

Ph.D. (Physical Chemistry)
Laser spectroscopy and collision dynamics
University of Maryland at
College Park, College Park, MD, 20742
December, 1986

INVENTIONS AND PATENTS:

Biochemical contact lens
With Chris Adams
US Patent Serial No, 6,143,315
Issued in 1999

Adaptive infrared retinoscopic device for detecting ocular aberrations, with YL Chen
U.S. Utility Patent Application Serial No. 11/642,226
Filed December 20, 2006

Digital eye bank for virtual clinical trials, with YL Chen
U.S. Utility Patent Application Serial No. 11/585,522

Filed on October 24, 2006

Pulsed electromagnetic treatment for recalcitrant corneal ulcers
US patent (in preparation)

EDITORIAL BOARD/ REVIEWER

Editor-in-chief: Refractive Eyecare (China edition), Cataract & Refractive Surgery Today (Chinese cover version);
Editorial board member: Cataract & Refractive Surgery Today, Refractive Eyecare
Co-editor: Aier Refractive Surgery Journal
Reviewer: American Journal of Ophthalmology, Genomics, Investigative Ophthalmology and Visual Sciences, Ophthalmology, Journal of Refractive Surgery, Journal of Cataract and Refractive Surgery

PROFESSIONAL ORGANIZATIONS

American Society of Cataract & Refractive Surgery, 1997-;
Head Society, 1996-;
Alumni Societies: Harvard, 91-; MIT 91-;
Wills Eye Hospital 96-;
Bascom Palmer Eye Institute, 97-;
Association of Research in Vision and Ophthalmology, 90-;
Nashville Academy of Ophthalmology, 97-;
Tennessee Academy of Ophthalmology, 98-;

LICENCE AND BOARD CERTIFICATION

Licensed in TN, 1997-;
American board of ophthalmology certified, 98-;

POST GRADUATE TRAINING:

Clinical fellowship
Cornea/external disease/refractive surgery
Bascom Palmer Eye Institute
Miami, FL, 33101
1996-1997

Resident in Ophthalmology
Wills Eye Hospital
Philadelphia, PA, 19107
1993-1996

Medicine (MD, magna cum laude)
Harvard Medical School and MIT
Boston, MA
1987-1992

Postdoctoral Fellow
Molecular Biology
Department of Genetics
Harvard Medical School and MIT
Boston, MA, 02115
1987-1991

Postdoctoral Fellow
Laser Spectroscopy and Collision Dynamics
University of Maryland at
College Park, MD, 20742
1986-1987

FACULTY/TEACHING POSITIONS HELD:

Clinical Associate Professor of Ophthalmology
University of Tennessee at Memphis
2004-present

Medical Director of Refractive Surgery, Aier Eye Hospitals
P.R. China
2005-present

Attending Surgeon, Saint Thomas Hospital
Nashville, TN
2002-present

Director of Wang Vision Institute
Director of Corneal Fellowship Program
Wang Vision Institute
2002-present

Research Associate Professor of Biomedical Engineering
Department of Biomedical Engineering
Vanderbilt University
2002-2003

Assistant Professor of Ophthalmology
Department of Ophthalmology
Vanderbilt University School of Medicine
1997-2002

Assistant Professor of Ophthalmic Research
Jefferson Medical College and
Wills Eye Hospital
Phil, PA, 19107

1992-1996

Co-instructor
“Laser Tissue Interaction”
Department of Biomedical Engineering
Vanderbilt University
2002-present

Lecturer and course director
Biol 321: "Human Genetics".
Biol 221: "Molecular Genetic Analysis".
Department of Biology
University of Pennsylvania
Philadelphia, PA, 19107
1993-1996

Director, Laboratory of Molecular Biology
Research Division
Wills Eye Hospital, Phila, PA, 19107
1992-1993

Advisor for premed undergraduate student
Department of Biological Sciences
Harvard University, Cambridge, MA
1988

Instructor
Mathematics/Biology/Chemistry/Physics
Stanley H. Kaplan Education Center
Washington D.C., 20008
1986-1993

Tutor
Chemistry/Mathematics/Physics/Biochemistry
University of Maryland at
College Park, MD, 20742
1982-1986

Research Assistant
Department of Chemistry
University of Maryland at
College Park, MD, 20742
1982-1986

Teaching Assistant
Department of Chemistry
University of Maryland at
College Park, MD, 20742

1982-1985

FELLOWSHIPS AND AWARDS:

Lifetime Achievement Award
Association of Chinese American Physicians
New York, June, 2007

Castle Connelly Selection (award given to less than 1% of US physicians)
2002 - present.

Achievement Award
American Academy of Ophthalmology
2004

Best Paper in Cornea Session
"Posterior changes after LASIK"
ASCRS, 2002

1999/2001 Burroughs-Wellcome Fund Finalist for award as New Investigator
2000

Fight for Sight Fellow
Grant-in-Aid
1999

1998/2000 Burroughs-Wellcome Fund Finalist for award as New Investigator
1999

Vice Chancellor's Faculty Scholar Award
Vanderbilt University
1998.

Fight for Sight Fellow
Research to Prevent Blindness
1998

Best presentation in refractive surgery
"Hyperopic shift after PTK"
ASCRS, 1998.

Heed Fellow
Heed Foundation
1996-1997.

ARVO/Retina Research Foundation
Lawrence Fellowship Grant
"Equivalent Gene Carrier Model"
ARVO, 1995.

James Shipman Award
for the "Best Scientific Presentation by
a resident at the Annual Conference of
Wills Eye Hospital"
Philadelphia, PA, 19107
1994

Henry and Corinne Bower Fellow
Wills Eye Hospital
Philadelphia, PA, 19107
1992-1993

***Magna cum laude* (M.D.)**
Harvard Medical School
Boston, MA, 02115
1991

Harold Lamport Biomedical Research Prize:
For "the Best Thesis Reporting Original
Research in the Biomedical Sciences"
Harvard Medical School
Boston, MA, 02115
1991

Robert D. McCallum Retina Research Fellow
Wills Eye Hospital
Philadelphia, PA, 19107
1991

R.H. Levine Scholar of Health Science and
Technology
Research Grant, HST/1990
Harvard Medical School
Massachusetts Institute of Technology
Boston, MA, 02115
1990

Sellard Fellow: For Excellence in
Research in Social Medicine
Harvard Medical School
Boston, MA, 02115
1989

National Science Foundation Postdoctoral Fellowship
Laser Collision Dynamics
National Science Foundation
Washington D.C., 20550
1987

Gold Medal
Latin
1997 United States USABDA Novice National Championship
Newark, DE
1997

World finalist, pro-am world ballroom dance championship in international 10-dance, 2006.

RESEARCH GRANTS:

PhamrVU/Chancellor's fund
"Amniotic contact lens"
For development based on US patent (6,143,315)
7/1/01-5/03, $100,000.

NIH RO1 (EY-01621), as co-PI (PI: Denis O'Day)
"Experimental Fungal Infections of the Eye"
4/1/97 – 3/31/00, $1,080,345.

SDRC grant, Vanderbilt.
"Creation of a transgenic mouse model for lattice dystrophies".
5/1/98-4/30/01, $60,000.

Grants-in-Aid, Fight for Sight,
Research to Prevent Blindness
"Transgenic mouse model for corneal dystrophies".
7/1/98-6/30/99, $11,000.

Award as finalist for new investigator in
Molecular Pathogenic Mycology
Burroughs Wellcome Fund
8/9/98 – 8/29/98, course, $5,000.

URC Vanderbilt Research Award
"A novel treatment of recalcitrant corneal ulcer using pulsed magnetic therapy".
7/1/98 – 6/30/99, $16,000.

Joe C. Davis Foundation Award
"Characterization of keratoepithelin gene in corneal wound healing".
1/1/98 – 12/31/99, $50,000.

Pennsylvania Lions Foundation.
"Mechanism of tumor suppression: in vivo interaction of retinoblastoma protein with human genes."
7/1/92 – 6/30/93, $7,000.

Harvard Medical School
"The impact on social economics and child education of the one-family-one-child birth-control policy in China".
6/88 – 9/88, $3,500.

BOOKS:

Wang MX, editor
Irregular Astigmatism – Diagnosis and Treatment
SLACK, Inc
2007

Wang MX, editor
Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc
2006

Wang MX, editor
Corneal Dystrophies and Degenerations – A Molecular Genetics Approach
American Academy of Ophthalmology
2003

Wang MX.
LASIK Vision Correction
1998

CHAPTERS IN BOOKS:

Wang MX, Shields JA and Donoso LA:
"Subclinical metastasis of uveal melanoma".
International Ophthalmology Clinics
33, 119-127, 1993

Zhang K, Wang MX, Munier F, Roth D, Mastrangelo D, Chung S, Shields JA and Donoso LA:
"Molecular Genetics of Retinoblastoma".
International Ophthalmology Clinics
33, 53-65, 1993

Wang MX, Donoso LA:
"Gene Research and the Eye".

Current Opinion in Ophthalmology
4;III, 102-111, 1993

Cha SB, Shields JA, Shields CL
and Wang MX.
"Squamous cell carcinoma of the
conjunctiva".
International Ophthalmology Clinics
33, 19-24, 1993

Wang MX, Jenkins JJ III, Cu-Unjieng AB,
Meyer D, and Donoso LA.
"Eye tumors".
In "Pediatric Neoplasia: Morphology and
Biology, in Parham DM, Eds,
Lippincott-Raven,
pp405-422, 1996.

Wang MX, and Donoso LA.
"Recent Advances in the Molecular Genetics
of Retinitis Pigmentosa".
Current Opinion in Ophthalmology
1995, 6:III:1-7.

Wang MX, and Nelson LB.
"The diagnosis and management of strabismus presenting
after cataract surgery".
Year Book in Ophthalmology
pp421-426, 1995

Wang MX, Donoso LA and Nelson LB.
"Molecular genetic basis of ophthalmic diseases".
Duane TD, Tasman WS and Jaeger EA Ed.
Biomedical Foundation of Ophthalmology
Chapter 55, pp1-44, 1996.

Wang MX
Excimer - fundamentals and clinical use.
J. Ophthal Nu and Tech.
15, 230-231, 1996.

Wang MX, and Nelson LB.
Heredity of myopia.
Year Book in Ophthalmology
pp429-435, 1996.

Wang MX, Karp CL, Selkin RP, and Azar DT.
Corneal and Conjunctival surgery,

Ophthalmology, Duker and Yanoff Eds. 5.12, 1-18, 1998.

Wang MX, Forster RK.
Dystrophies, degenerations and congenital
Anomalies of the cornea.
Bascom Palmer Atlas of Ophthalmology
Richard Parrish Eds, 12:91-98, 1999

Wang MX, Carlson A, Liu, J.
X-linked ophthalmic diseases
Duane's Biochemical Foundation of Ophthalmology
Tasman and Jaeger Eds, 57:1-17, 2001.

Wang MX.
Surgical correction of refractive errors
WEBEBM, 2001.

Wang MX, Flattem, N, Munier F.
Molecular genetics of corneal dystrophy
In Wang MX Ed, Cornea Dystrophies and Degeneration – A Molecular Genetics Approach
American Academy of Ophthalmology, 2003.

Flattem N, Wang MX.
Stromal corneal dystrophies
In Wang MX Ed, Cornea Dystrophies and Degeneration – A Molecular Genetics Approach
American Academy of Ophthalmology, 2003.

Irvine AD, McLean WHL, Wang MX.
Epithelial, Basement Membrane and Bowman's Layer Dystrophies
In Wang MX Ed, Cornea Dystrophies and Degeneration – A Molecular Genetics Approach
American Academy of Ophthalmology, 2003.

Handwerger BA, Rapuano CJ, Wang MX, Laibson PR.
Corneal degenerations
In Wang MX Ed, Cornea Dystrophies and Degeneration – A Molecular Genetics Approach
American Academy of Ophthalmology, 2003.

Tran UL, Wang MX.
Excimer laser treatment for corneal dystrophies and Degenerations
In Wang MX Ed, Cornea Dystrophies and Degeneration – A Molecular Genetics Approach
American Academy of Ophthalmology, 2003.

Wang MX.
Physical optics
Basic Science Series, American Academy of Ophthalmology
Chapter 1, Monograph on optics and refraction
2005

Wang MX.
Optical consideration in refractive surgery
Basic Science Series, American Academy of Ophthalmology
Chapter 7, Monograph on optics and refraction
2005

Wang MX, Swartz T
Laser Intacs for keratoconus
In Gulani A ed
2005

Panchal L, Swartz T, Wang MX
Femtosecond laser Intacs for keratoconus
Ophthalmology Hyperguide
2005

Swartz, T et al, and Wang MX.
History of topography
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Yu K, Swartz T, Boerman H, Wang MX.
Anatomy of the cornea
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Coward D, Swartz T, Wang MX.
The Optics of the Cornea
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Swartz T, Liu Z, Yang X, Zhang M, Wang MX.
Topographic Technologies
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Cohen I, Swartz T, Wang MX.

Axial, Eelvation and Pachymetric Mapping
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Guillermo A-U, et al and Wang MX
Pre-refractive surgery evaluation
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Wang MX, Swartz T.
3-D sterior corneal topographic system: The AstraMax
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Maus M et al and Wang MX
Pentacam
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Swartz T, et al, and Wang MX
Precisio
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Gulani A, Wang MX.
The future of corneal Topography
In Wang MX ed: Corneal Topography in the Wavefront Era – a Guide for Clinical Application
SLACK, Inc, 2006

Boerman H, Swartz T and Wang MX.
Decentered ablations
In Agarwal A ed: Refractive Surgery Nightmares
SLACK, Inc. 2007

Swartz T and Wang MX.
Topographic and Wavefront aberrometry disasters
In Agarwal A ed: Refractive Surgery Nightmares
SLACK, Inc. 2007

Kieval J and Wang MX.
Nonectatic corneal probles causing irregular astigmatism
In Wang MX ed: Irregular Astigmatism – Diagnosis and

Treatment
SLACK, Inc, 2007.

Swartz T, Wachlar BB Wang MX.
Intacs Implantation
In Wang MX ed: Irregular Astigmatism – Diagnosis and Treatment
SLACK, Inc, 2007.

Liu D and Wang MX et all
Irregular astigmatism: LaserSight Ellipsoid Model and Topography-drivern Aspheric Treatment
In Wang MX ed: Irregular Astigmatism – Diagnosis and Treatment
SLACK, Inc, 2007.

Wang MX
Future direction: technological devlepment and treating the problem at its source
In Wang MX ed: Irregular Astigmatism – Diagnosis and Treatment
SLACK, Inc, 2007.

Wang MX and Swartz T
Corneal topography application in prebyopic lens implantation
In Change D eds: Prebyopic lenses
SLACK Inc 2008.

Hill, S, Swartz S, Wang MX
Wang's LASIK Complications.
***LASIK & LASIK Complications,* Robert Pinelli, Editor.**
Jaypee Brothers Medical Publishers (P)
LTD, New Dehli, 2008.

Swartz M, Wang MX and Gulani A;
Corneal topographers and wavefront aberrometers: complementary tools
Refractive surgery, 2nd edition, Agarwal A
Jaypee, 2008

HOBBIES:

Competitive ballroom dancing
- **Ranked 4th in World Pro-AM Ballroom Dance Championship in open international 10-dance, 2007;**
- **Gold medal in novice international latin, 1997 United States National Ballroom Championship USABDA**

Ballet
Piano and music composition

Table tennis, Badminton, Sailing, Tennis
Calligraphy
Violin, Er-hu (Two Strings)
Writing
Classical literature

Summary of Doctoral Thesis

Ph.D. (Physical Chemistry)
Laser spectroscopy and collision dynamics

University of Maryland at College Park, MD
1986

COLLISION REACTION DYNAMICS OF ASSOCIATIVE IONIZATION REACTIONS BETWEEN RESONANT EXCITED NA(3P) ATOMS

Associative ionization is a fundamentally important collision reaction which has served as a model system for studying quantum mechanics and reaction dynamics. It is an elementary two-body collision process where reactant atoms approach collision center by following quantum mechanically accessible energy surfaces. The complex collision dynamics, the mechanism of chemical bond formation and ejection of electrons, and product energy and angular momentum distributions have long challenged physicists since the collision process can be studied in the laboratory under appropriate conditions. We have carried out a systematic theoretical modeling and experimental study of the associative ionization process.

We devised a high vacuum collision chamber, highly collimated atomic beam sources and a state-of-the-art signal detection and analyzing system. These laboratory apparatuses were coupled with a high resolution laser system which includes solid, liquid and gas lasers. The lasers were used to induce resonant atomic excitation of reactant atoms and to modulate collision velocity and angular momentum.

A mathematical model has been developed to characterize the quantum mechanics, the vibrational and rotational angular momentum distributions, the characteristic collision energy distributions and the product internal state partitions. Direct measurement of the velocity dependence of the associative ionization process revealed peaked collision cross section at energy of 120 meV, a minimum at 180 meV and an uprising cross section above 180 meV. The collision partners favor sigma-sigma orbital orientation, and the reaction probability decreases in the following order: sigma-sigma, pi-pi and sigma-pi. The anisotropy in the spatial orientation of collision orbitals is also velocity dependent, with the reaction cross section increasing with collision velocity above thermal energies. We developed a semiclassical theory in which the collision dynamics are described in terms of transformation from a laboratory fixed coordinate to a molecular axis. A unique locking radius was found (25 A) within which the quantum axis was described within the framework of inter-atomic coordinates. We also probed the internal state distribution of the product Na_2^+. Through computer simulation of the collision dynamics, we discovered a characteristic internal rotational and vibrational energy distribution which opens a new channel of quantum mechanical calculation and experimental verification of reaction parameters. We developed a battery of experimental techniques which include Doppler detuning and collision velocity selection, single beam subthermal energy collision, collision spatial alignment and toggling, product spatial collimation and photofragmentation techniques. Intensive experimental study and theoretical modeling has led to the discovery of the principle reaction pathway of the fundamentally important collisional ionization reaction between resonantly excited alkali atoms.

Summary of M.D. Doctoral Thesis

M.D. (Magna cum laude)
Harvard Medical School

Thesis concentration: Molecular biology

Harvard-MIT
Division of Health Science and Technology
Massachusetts Institute of Technology
1991

IN VIVO DNA-PROTEIN INTERACTIONS*:* A WHOLE GENOME APPROACH

Increasingly extensive collections of genomic DNA sequences and cloned modification enzymes open up new ways to view *in vivo* macromolecular assemblies. We have developed a new technique to study whole genome for protein recognition sites that are protected from *in vivo* DNA methylation. Assays for such sites exploit the ability of appropriate endonuclease to subsequently cleave purified genomic DNA only at the unmethylated sites. Three assays of these endonuclease sites include end-labeled fragment sizing, clone sequencing and filter hybridization. Application of these methods to the *Escherichia coli* genome has revealed specific patterns of partially methylated sites for GATC, CCGG, CCGG, GCGC, GANTC and TCGA specific methylases. For the GATC specific dam methylase, the end-labeled protected sites sum to 0.1% of the potential targets. The clone sequencing assay is particularly informative for *E. coli* since 37% of the genome sequence is available in computer databases. Sequences flanking protected GATCs found to match database entries all fell in non-coding regions of genes. These include the *gut, mtl, cdd, flh,* and *car* operons. These matches immediately suggest physiological and mutational tests of methylation protection models through the filter hybridization assay. Some undermethylated GATC sites overlap close matches to the cAMP-CRP consensus sequence. Protection of such a GATC site in the *gut* upstream region was reduced in a crp$^-$ strain. The protection of the GATC site upstream of *car* is sensitive to growth on pyrimidines, fitting well with the role of carAB products in pyrimidine biosynthesis. Further complete genome sequences will increase the utility and accuracy of these and other whole cell analyses by urging immediate identification of each unique observation with a specific computer molecular species.

Published in Nature 1992;360:606-610, "A whole-genome approach to in vivo DNA-protein interaction", Wang MX and Church GM.

PROFESSIONAL PUBLICATIONS

Wang MX, DeVries MS, Keller J, Weiner J:
Direct Measurement of the Velocity Dependence of the Associative Ionization Cross Section in Na(3p) + Na(3p) Collisions.
Physical Review A 32:681-684, 1985.

Keller J, Bonanno R, Wang MX, DeVries MS, Weiner J:
Determination of Internal Energy Distribution in Na_2^+ Produced by Associative Ionization Collisions in Crossed-beams.
Physical Review A 33:1612-1619, 1986.

Wang MX, DeVries MS, Weiner J:
Measurement of Product Rotational Alignment in Associative Ionization Collisions between Polarized Na(3p) Atoms.
Physical Review A 33:765-767, 1986.

Wang MX, DeVries MS, Weiner J:
Analysis of the Alignment of Na_2^+ Rotational Angular Momentum Arising from Associative-Ionization Collisions between Polarized Na(3p) Atoms.
Physical Review A 34:1869-1875, 1986.

Wang MX, Keller J, Boulmer J, Weiner J:
Strong Velocity Dependence of the Atomic Alignment Effect in Na(3p) + Na(3p) Associative Ionization Collision.
Physical Review A 34:4497-4501, 1986.

Wang MX, Keller J, Boulmer J, Weiner J:
Spin-selected Velocity Dependence of the Associative-Ionization Cross Section in Na(3p) + Na(3p) Collisions over the Collision Energy Range from 2.4 meV to 290 meV.
Physical Review A 35:934-938, 1987.

Wang MX, Weiner J:
Evidence for the Dominant Role played by $^3Sigma_u^+$ and $^1Sigma_g^+$ Adiabatic Molecular States in Associative Ionization Collisions between Two Excited Sodium Atoms.
Physical Review A 35:4424-4427, 1987.

Wang MX, Weiner J:
Internal-State Distribution of Na_2^+ Produced by Associative Ionization collisions between Na(3p) atoms.
Physical Review A 39:405-408, 1989.

Johnson BC, Wang MX, Weiner J:
Crossed-Beam Studies of Associative Ionization in Heteronuclear

Systems: $NaLi^+$ Production from Li^* + Na and Na^* + Li Collisions.
J. Physics B 21:2599-2605, 1988.

Wang MX, Weiner J:
The Determination of Associative Ionization Rate Coefficients in Cell, Inter-beam, and Intra-beam Collisions between Excited and Ground state sodium atoms.
J. Physics B 21:L15-L17, 1988.

Wang MX, Earley JJ, Shields JA, Donoso LA:
An Ocular Melanoma Associated Antigen: Molecular Characterization.
Arch. Ophthal. 110:399-404, 1992.

Wang MX, Church GM:
A Whole Genome Approach to In vivo DNA-Protein Interactions in *E. coli*:
Nature, 360, 606-610, 1992.

Roth D, Wang MX, Mastrangelo D, Shields JA, Croce CM, and Donoso LA:
A rapid non-radioactive technique for the detection of point mutations in the retinoblastoma gene.
Nucleic Acid Research, 1995.

Naumova A, Hanser M, Strong L, Jones P, Hadjustilianou D, Mastrangelo D, Rajewsky M, Griegel S, Shields J, Donoso L. Wang MX, Sapienza C:
Concordance between parental origin of chromosome 13q loss and 6p amplification in sporadic retinoblastoma.
Ame. J. Human Genetics, 54, 274-281, 1994.

Wang MX, Shields JA and Donoso LA:
Subclinical metastasis of uveal melanoma
International Ophthalmology Clinics, 33, 119-127, 1993

Zhang K, Wang MX, Munier F, Roth D, Mastrangelo D, Chung S, Shields JA and Donoso LA:
Molecular genetics of retinoblastoma
International Ophthalmology Clinics, 33, 53-65, 1993

Wang MX, Donoso LA:
Gene Research and the Eye
Current Opinion in Ophthalmology, 4;III:102-111, 1993

Cha SB, Shields JA, Shields CL and Wang MX.
Squamous cell carcinoma of the conjunctiva
International Ophthalmology Clinics, 33, 19-24, 1993

Munier F, Wang MX, Thonney F, Pescia G, Balmer A, Spence MA, T'Ang A, Donoso, LA, Shields J, and Murphree AL.

Pseudo low penetrance: fortuitous familial aggregation of sporadic retinoblastomas caused by independently-derived mutations in two large pedigrees.
Arch. Ophthal, 111, 1507-1511, 1993.

Singh AL, Wang MX, Donoso LA, Shields JA, Shields CL, De Potter P, Maumenee IH, Elston RC and Fijal B.
Familial uveal melanoma - III: Is the occurrence of familial uveal melanoma coincidental?
Arch. Ophthal. 114, 1101-1104, 1996.

Wang MX, Jenkins JJ, Cu-Unjieng AB, Meyer D, Donoso LA.
"Eye tumors", in Parham DM Ed "Pediatric neoplasia:
morphology and biology"
Lippincott-Raven
pp405-422, 1996.

Wang MX, Sandos R, Crandal A and Donoso LA.
Recent advances in the molecular genetics of retinitis pigmentosa.
Current Opinion in Ophthalmology, 1995, 6;III:1-7.

Wang MX, and Nelson LB.
Strabismus presenting after cataract surgery.
Year Book in Ophthalmology, 421-426, 1995.

Wang MX
Excimer - fundamentals and clinical use.
J. Ophthal Nu and Tech.
15, 230-231, 1996.

Wang MX, Donoso LA and Nelson LB.
Molecular basis of ophthalmic diseases.
Duane TD, Jaeger EA and Tasman WS Ed.
Biomedical Foundation of Ophthalmology,
Chapter 55, pp1-44, 1996.

Naumova AK, Bird L, Slamka C, Fonseca M, Verner AE, Wang MX, Leppert M, Morgan K, and Sapienza C.
Transmission-ratio Distortion of X Chromosomes Among Male Offspring of Females with Skewed X-Inactivation.
Developmental Genetics 17:198-205 (1995).

Wang MX, and Nelson LB.
Heredity of myopia
Year Book in Ophthalmology
pp429-435, 1996.

Singh AD and Wang MX, et al.
Genetic aspect of uveal melanoma: a brief review. Seminars in Oncology, 23(6)768-772, 1996.

Wang MX, Karp CL, Selkin RP, Azar DT.
Corneal and conjunctival surgery.
Ophthalmology, Podos and Yanoff Eds, 5.12, 1-18, 1998.

Korvastska E, Munier F, Wang MX, et al.
Mutation hotspots in 5q31-linked corneal dystrophies
Am J Hum Genet, 1998, 62:320-324.

Korvastska E, Munier F, Wang MX, et al. On the role of kerato-epithelin in the pathogenesis of 5q31-linked corneal dystrophies. Invest Ophthal Vis Sci, 40:2213-2219, 1999.

Wang MX, et al. Apoptosis and corneal haze is reduced with amniotic membrane transplantation. SPIE, 1998, 3246:109-119.

O'Day DM, Head WS, Robinson RD, Yang R, Shetlar D, Wang MX. Contact lens induced infection - A new model of candida albicans keratitis. Invest Ophthal Vis Sci, 40(7):1607-1611;1999.

O'Day DM, Head WS, Csank C, Shetlar DJ, Robinson RD, McCollum GW, Yang R, Zhu TL and Wang MX. Differences in virulence between two C. albicans strains in experimental keratitis. Invest Ophthal Vis Sci, 41:1116-1121, 2000.

Kanitkar K, Shen DJ, Humble H, Pflugfelder S, Hersh P, Wang, MX. Manual epithelial removal is less painful than transepithelial method in PRK. J. Ref Surg, 16:519-522, 2000.

Wang MX, Shen DJ, Liu JC, Pflugfelder SC, Alfonso E and Forster RK. Recurrent fungal keratitis and endophthalmitis. Cornea, 19(4):558-560, 2000.

Braun BR, Head WS, Wang MX, Johnson A. Identification of TUP1-regulated genes in *C. albicans*. Genetics, 156, 31-44, 2000.

Wang MX, Gray T, Park WC, Prabhasawat P, Culbertson W, Forster R, Hanna K, Tseng SCG. Reduction in corneal haze and apoptosis by amniotic membrane matrix in excimer laser photoablation in rabbits. J Cat Ref Surg 27:310-319;2001.

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Wang MX, Munier FL, Araki-Saski K, Schorderet DF. TGFBI gene transcript is transforming growth factor-β-responsive and cell density-dependent in a human corneal epithelial cell line. Ophthal Genetics, 2002, 23;237-245;

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AS INVITED SPEAKER

Collisional-ionization reactions between homonuclear Na^* + Na, Li^* + Li and heteronuclear Na^* + Li, Li^* + Na collisions.
Department of Chemistry
University of Maryland at College Park
College Park, MD, 20742
1983

A Novel Design of Crossed-Beam Atomic Collision Experiment to Study the Velocity Dependence of Associative Ionization Reaction.
University of Maryland at College Park
College Park, MD, 20742
1984.

Collision Reaction Dynamics of the Associative Ionization Reaction between Resonantly Excited Na(3p) Atoms.
Department of Chemistry
University of Maryland at College Park
College Park, MD, 20742
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Thermodynamic and Kinetic Studies of the Heterogeneous Hybridization Reactions in the Multiplex DNA Sequencing.
Department of Genetics
Harvard Medical School
Boston, MA, 02115
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A Method for Screening Genomes to Identify and Characterize DNA Sequences Involved in Strong DNA-Protein Interactions.
Annual Research Forum of Harvard Medical School - M.I.T.

Division of Health Science and Technology
Massachusetts Institute of Technology
Cambridge, MA
1991.

In vivo DNA-protein interaction: A whole-genome approach.
Department of Biochemistry and Molecular Biology
Thomas Jefferson University, Philadelphia, PA, 19107
1992.

In vivo DNA-protein interaction: A whole-genome approach.
Department of ophthalmology
Children Hospital of Los Angeles, Los Angeles, CA,
1992.

A whole genome approach to in vivo DNA-protein interaction.
Ludwig Institute for Cancer Research
San Diego Branch, University of California, San Diego
1992.

In vivo DNA-protein interactions.
Department of Biological Sciences
Columbia University, New York
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In vivo DNA-protein interaction: A whole genome approach.
Department of Bioscience and Biotechnology
Drexel University, Philadelphia, PA,
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Genetics of retinoblastoma.
Wills Eye Hospital
Philadelphia, PA, 1994.

Equivalent Gene Carrier - a genetic analysis model.
Ophthalmic Genetics Study Club
American Academy of Ophthalmology
San Francisco, LA, 1994.

Genetics in Ophthalmology
Lecture presented at the Annual Wills Eye Conference
Adam Mark Hotel, Philadelphia, PA, 1995.

Parental source of the retinoblastoma gene.
Ophthalmic Genetics Study Club.
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Molecular genetic basis of ophthalmic diseases

Annual Meeting for the American Academy of Ophthalmology. Chicago, IL, 1996.

Corneal haze is reduced by amniotic membrane matrix in excimer laser photoablation in rabbits.
Bascom Palmer Eye Institute, Miami, FL, 1997.

A genomic approach to in vivo DNA-protein interaction.
Department of Molecular Biology
Vanderbilt University School of Medicine
Nashville, TN, 1997.

A panel screen for Betaig-H3 and K3/K12 mutations in Meesmann, anterior basement membrane disease and anterior stromal corneal dystrophies.
Ophthalmic Genetics Study Club
AAO, New Orleans, 1998.

Molecular biology of hereditary ocular diseases.
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TUP1 regulated hyphael growth in C. albicans.
Department of Microbiology
Vanderbilt University School of Medicine
Nashville, TN, 1998.

Mutational analysis for Bigh3 gene for corneal dystrophies
Skin Disease Research Center
Vanderbilt University School of Medicine
Nashville, TN, 1999.

"Modern refractive laser systems of the 21st century"
Invited speaker, Conference on Refractive Surgery
Mayo Clinic, Jacksonville, FL
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"LASIK complications and management"
Invited speaker, Conference on Refractive Surgery
Mayo Clinic, Jacksonville, FL
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The 1st Internatinal Conference on Amniotic Membrane
Invited speaker, "Amniotic membrane graft for severe chemical burn"
Brazil, 2000.

"A new drug regiment for systemic immunosuppression for limbal stem cell graft"
International conference on amniotic membrane graft and stem cells
Session moderator and invited speaker, Poland, 2000.

"Amniotic membrane contact lens"
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"Amniotic membrane graft"
Invited speaker, Wake Forest Annual Eye Conference
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"New anterior segment reconstructive surgeries:
Invited speaker, National Medical Association Annual Conference
Opryland, Nashville, Aug, 2001.

"New surgical techniques for anterior segment reconstruction"
Invited speaker, University of North Carolina at Chapel Hill
October, 2001.

"Amniotic contact lens"
Department of Ophthalmology and Visual Sciences
Vanderbilt University School of Medicine
November, 2001.

"Topographic pitfalls in refractive surgery"
Invited speaker, Wake Forest University Annual Eye Meeting, 2001.

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"Limits of current topographies", ASCRS, April, 2001.

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"New refractive surgical techniques: a critical review", Kentuky Annual Eye Meeting, invited speaker, June, 2001.

"Limits and clinical problems of current topography systems", invited speaker, ISRS, Orlando, July, 2001.

"Cornea 2001 – a vision odyssey", National Medical Association Ophthalmology Annual meeting, invited speaker, Aug, 2001.

"Topographic pitfalls in refractive surgery", National Medical Association Ophthalmology Annual meeting, invited speaker, Aug, 2001.

"New surgical techniques for anterior segment reconstruction"
Invited speaker, University of North Carolina at Chapel Hill
October, 2001.

"Limitations of current topographers and the AstraMax solution"
Catch the Wave 2, International Society of Refractive Surgery Annual meeting, Nov 2001.

"Biological Planck's Constant – fundamental limitations to wavefront treatment technologies", invited speaker, Bascom Palmer Eye Institute 40th Anniversary Scientific Meeting, Miami, 2002.

"Clinical significance of posterior corneal changes after LASIK", Ocular Therapeutics Annual Conference, CA, 2002.

"FDA clinical trial status of ICL"
Annual Refractive Surgery Conference
Department of Ophthalmology and Visual Sciences
Vanderbilt University
June, 2002.

"Ablation depth analysis of AstraPro custom cornea-based treatment", Annual Conference of Refractive Surgery, The Netherlands, Feb, 2003.

"Amniotic contact lens: a progress report"
Invited speaker, University of Michigan Winter Cornea conference
January, 2004

"Corneal topography and wavefront: complementary tools"
Invited speaker, University of Michigan Winter Cornea conference
January, 2004

"Tracey Ray-Tracing: a new generation wavefront system"
Invited speaker, Annual meeting of China Academy of Ophthalmology
Sept, 2004.

"Corneal topography-drive custom ablation"
Invited speaker, Annual meeting of China Academy of Ophthalmology
Sept, 2004.

"Wavefront and corneal topography: custom ablation system with combined considerations"
Invited speaker, Ai-er Eye Hospital
Changsha, PRC, Sept 2004.

"Posterior changes after LASIK"
Invited speaker, University of Michigan Winter Cornea Conference
January, 2004.

"Update on refractive surgery".
Talk presented to University of Tennessee ophthalmology resident, Dec, 2004.

"Current techniques in refractive surgery"
University of Tennessee, Department of Ophthalmology, June, 2005;

"Topogrpahy – Recent advances", Aspen Invitational, March 2006;

"Corneal topography – the stat of the art", Hawaii Eye Meeting, Jan 2007;

"Recent advances in corneal topography". NY Refractive Surgery Club, Feb, 2007;

"Amniotic membrane contact lens". Aspen Invitational meeting, March 2007;

"Refractive Surgery in China". Aspen Invitational meeting, March 2007;

"Corneal topography – a comprehensive review", Saudi Arabia annual ophthalmology meeting, May, 2007.

"My nomogram", Subspecialty Day – Refractive Surgery
AAO, 2007

"Is there a fundamental limit of efficacy when correcting aberrations arising from one axial point (lens), at another (cornea)", Aspen Invitational Meeting, March 2008.

"Laser vision correction: the state of the art"
World Ophthalmology Congress, Hong Kong, 2008.

"The important role of corneal topography is wavefront treatments"
World Ophthalmology Congress, Hong Kong, 2008.

AS THE PRINICIPLE OR CO-INSTRUCTOR FOR COURSES

The 1st Annual LASIK Training Course
Course organizer and principle instructor
Vanderbilt University, June, 1998.

The 2nd Annual LASIK Training Course
Course organizer and principle instructor
Vanderbilt University, June, 1999.

The 1st Annual VISX Excimer Laser Certification Course
Principle instructor
Vanderbilt University, June, 1999.

The 1st LASIK training course
Principle instructor
Shanghai, 1999.

The 1st LASIK Certification Course
Taiwan Academy of Ophthalmology

Principle instructor
Taipei, Taiwan, August, 1999.

Diabetic corneal diseases
American Academy of Ophthalmology Annual meeting, Oct, 1999.

The 3rd annual refractive training course
Course organizer and principle instructor
Vanderbilt University, 2000.

The 2nd LASIK course
Taiwan Academy of Ophthalmology
Principle instructor
Taipei, Taiwan, 2000.

The 1st Advance LASIK course
Taiwan Academy of Ophthalmology
Principle Instructor
Taichung, Taiwan, 2000.

LASIK video grand round
Co-instructor
American Academy of Ophthalmology Annual meeting, Oct, 2000.

Corneal disorders in diabetic patients
Co-instructor
American Academy of Ophthalmology Annual meeting, Oct, 2000.

Orbscan
Co-instructor
ASCRS, April, 2001.

The 4th Annual Rfractive Conference of Vanderbilt Laser Sight Center
Course organizer and principle instructor
Vanderbilt University, June, 2001.

LASIK video grand round
Co-instructor
American Academy of Ophthalmology Annual meeting, Nov, 2001.

Orbscan course
Co-instructor
American Academy of Ophthalmology Annual meeting, Nov, 2001.

Corneal disorders in diabetic patients
Co-instructor
American Academy of Ophthalmology Annual meeting, Nov, 2001.

Refractive complications
Course director
Vanderbilt Laser Sight Center CME course, Dec 2001.

Refractive Eyecare of 21st Century
The first annual refractive surgery conference of Wang Vision Institute
Principal instructor
Nov, 2002.

Advanced corneal topography course for refractive surgeons
Principal instructor
ASCRS 2003.

Intralase corneal surgery
Refractive surgery conference of Wang Vision Institute
May 2003

Advanced corneal topography course for refractive surgeons
Principal instructor
AAO 2003.

Intralase flap making in post-RK eyes
Intralase
AAO 2003

Corneal topography and wavefront: a transition
Co-instructor (PI: Arun Gulani)
AAO 2003

LASIK complication video grand round
Co-instructor (PI: Ralph Chu)
ASCRS 2003

Advanced corneal topography course for refractive surgeons
Principal instructor
AAO 2003.

Intralase flap making in post-RK eyes
Intralase
AAO 2003

Corneal topography and wavefront: a transition
Co-instructor (PI: Arun Gulani)
AAO 2003

LASIK complication video grand round
Co-instructor (PI: Ralph Chu)

New refractive surgery technologies
Hangzhou 1st Affiliated Hospital
Dec, 2003;

Update on refractive surgery technologies
Jianghua, Dec, 2003;

New refractive surgery and corneal surgery technologies
Zhongshan Eye Hospital, Guangzhou
Dec, 2003;

New refractive surgery technologies
Wuhan Ai-good Eye Hospital
Dec, 2003;

Custom wavefront technology and amniotic contact lens
Shanghai eye, ear, nose and throat hospital
Dec, 2003;

Surgical options for presbyopia
Nan-ning Eye Hospital
Dec, 2003;

From corneal topography and wavefront
Co-instructor (PI: Arun Gulani)
ASCRS 2004

The first combined case of intralase with alphacor
LASIK complication video grand round
Co-instructor (PI: Ralph Chu)
ASCRS 2004

From corneal topography and wavefront
Co-instructor (PI: Arun Gulani)
ASCRS 2004

The first combined case of intralase with alphacor
LASIK complication video grand round
Co-instructor (PI: Ralph Chu)
ASCRS 2004

LaserSight custom cornea ablation system
Co-instructor: Alex Stonojavich
Annual meeting of China Academy of Ophthalmology
Sept, 2004.

Custom wavefront technologies
China National Ophthalmological Annual Conference

Sept, 2004;

New trend in refractive surgery
Changsha Ai-er Eye Hospital
Sept, 2004;

Advanced corneal topography course for refractive surgeons
Principal instructor
AAO 2004.

Intralase-assistedn Intacs for keratoconus
Intralase
AAO 2004

LASIK complication video grand round
Co-instructor (PI: Ralph Chu)
AAO, 2004

Femtosecond laser – assisted Intacs intracorneal ring treatment for keratoconus
LASIK complication video grand round
Co-instructor (PI: Ralph Chu)
AAO 2004

Advanced corneal topography course for refractive surgeons
Principal instructor
ASCRS 2005.

Video grand round
ASCRS 2005

China's first symposium on femtosecond laser
Course organizer and principle instructor
Shanghai Aier Eye Hospital,
August, 2005

China's first ICL training course
Guangzhou,
Sept, 2005;

Femtosecond laser technologies
Guangzhou Zhong Hospital
August, 2005;

Femtosecond laser
Ton-reng Eye Hospital, Beijing
August, 2005;

Femtosecond laser technologies

Tiangjing Eye Hospital
August 2005;

New refractive surgery technologies
Guangzhou Zhongshan Eye Hospital
Sept, 2005;

Femtosecond laser technologies
Yangguang Eye Hospitals
Shangzhen, China
August, 2005;

New refractive technologies
Changsha Wangwang Hospital
August, 2005;

Femtosecond laser
Zhuhai Eye Hospital
August, 2005;

LASIK video grant round
Co-instructor (PI: Ralph Chu)
AAO, 2005

Advance corneal topography course for refractive surgeons
Principle instructor
AAO, 2005.

Wang MX: Advanced corneal topography for refractive surgeons
ASCRS 06

Wang MX, as co-instructor: "Video Grand Round"
ASCRS 06

Wang MX, as co-instructor: "Nightmare cases"
ASCRS 06

Wang MX, as co-instructor: "Management of irregular astigmatism"
ASCRS 06

Wang MX, principal instructor: "New technologies in corneal topography"
Shanghai Aier Eye Hospital
April 06

Wang MX, principal instructor: "Femtosecond laser – LASIK and beyond"
Shanghai Aier Eye Hospital
April 06

Wang MX, principal instructor: "New technologies in treating LASIK complications"
Shanghai Aier Eye Hospital
April 06

Wang MX, principal instructor: "Differentiate or die"
Shanghai Aier Eye Hospital
April 06

Wang MX, co-instructor: "New technologies in treating complex eyes"
Nodic Ophthalmology Congress (Principle instructor: Aleks Stonjavich);
June 06

Wang MX, co-instructor: "New refractive surgery technologies"
Nodic Ophthalmology Congress (Principle instructor: Aleks Stonjavich);
June 06

Wang MX, principal instructor: "Advanced corneal topography for refractive surgeons"
ASCRS, April 2007.

Wang MX, as co-instructor, "Treating post-refractive surgery complex eyes"
ASCRS, April 2007.

Wang MX, as co-instructor, "Video grand round"
ASCRS, April 2007.

Wang MX, as co-instructor, "Refractive surgery nightmares"
ASCRS, April 2007

Wang MX, as session moderator "Refractive surgery – aberrations"
ASCRS, April 2007.

Wang MX, principal instructor: "Advanced corneal topography for refractive surgeons"
AAO, Nov 2007.

Wang MX, principal instructor: "Treating post-refractive surgery complex eyes"
AAO, Nov 2007.

Wang MX, "Three-point touch – identifying FFKC topographically"
AAO, Nov 2007.

Wang MX. Principal instructor: "Advanced corneal topography for refractive surgeons"
ASCRS 2008

Wang MX, co-instructor (principal instructor: Agarwal) "Melt of corneal incisions overlying Intacs"
ASCRS 2008

Wang MX, co-instructor (principal instructor: Aleksandar Stonjavich) "Irregular astigmatism –

classification, diagnosis and treatment"
ASCRS 2008

Wang MX, as principal instructor - Advanced corneal topography course for refractive surgeons
Nordic Ophthalmology Congress
Tromoso, Norway, 6/08

Wang MX, co-instructor (principal instructor: Gulani): "Advanced corneal topography – what every surgeon should know in 2008"
AAO, 2008.

Wang MX, co-instructor (principal instructor: Agarwal) "Removal of Intacs"
AAO 2008

Wang MX, principal instructor – Advanced corneal topography course for refractive surgeons.
ASCRS 2009

REFERENCES

James H. Elliott, M.D., F.A,C.S.,
Professor and Chairman Emeritus
Department of Ophthalmology and Visual Sciences
Vanderbilt University School of Medicine
615-665-0550

Stephen S. Feman, M.D., F.A.C.S.,
Professor
Saint Louis University Eye Institute
1755 South Grand Boulevard
St. Louis, MO 63104
314-577-8654, FAX 314-771-0596

Scheffer Tseng, M.D.,Ph.D.
Professor
Bascom Palmer Eye Institute
P.O. Box 016880, Miami, FL
305-326-6000

Richard K. Forster, M.D.
Professor
Bascom Palmer Eye Institute
P.O. Box 016880, Miami, FL
305-326-6000

William W. Culbertson, M.D.
Professors of Ophthalmology
Director, Cornea Service
Bascom Palmer Eye Institute
P.O. Box 016880, Miami, FL, 33101
(305)326-6000

Spencer Thornton, M.D.
5070 Villa Crest Drive
Nashville TN 37220
615-373-1236