

FULL CV: ALAN E. WILLNER

- ADDRESS:** EEB 538, Dept. of Electrical Engineering, Viterbi School of Engineering, USC, LA, CA 90089-2565, 213-740-4664, F: 213-740-8729, willner@usc.edu
- EDUCATION:** **Columbia University - Ph.D.** - Electrical Engineering - Aug. 1988 (defended). Thesis Advisor - **Prof. Richard Osgood, Jr.**, Thesis Title: Laser-Controlled Photochemical Etching of Semiconductors for Electro-optical Devices
- Columbia University - M.S.** - Electrical Engineering (1984)
Overall Columbia grade index - **4.11** (A = 4.0)
- Yeshiva University - B.A.**- Physics (1982). Grade index - **3.96** (A = 4.0)
- WORK EXPERIENCE:**
- Fall '10 - present **Steven and Kathryn Sample Chaired Professor in Engineering, Ming Hsieh Dept. of Electrical Eng., Viterbi School of Eng., University of Southern California**, Communications Sciences Institute
- Optical Communication Systems and Networks
- Mar. '15 - present Visiting Professor (Adj. Senior Res. Scientist), Elec. Eng Dept., Columbia Univ.
Sept. '17 - present Visting Scholar, Yeshiva College and Stern College for Women, Yeshiva Univ.
Fall '98 – Spring '10 Professor, Ming Hsieh Dept. of Electrical Eng., USC
Sept. '09 –June '14 Member, **Defense Sciences Research Council**, Consultant to Booz Allen
- Council performs studies that are presented to DARPA Director & Office Directors
- Fall '07 - Summer '12 **Co-Director**, Communications Sciences Institute, EEDept. Exec. Comm., USC
Fall '07 -Summer '17 Visiting Professor, Dept. of Electronic & Electrical Eng, Univ. College London
Nov. '99 - Nov. '02 **Founder & CTO**, Phaethon Communications (technology acquired by Teraxion)
- Created the **ClearSpectrum**[®]dispersion compensator product line
 - ClearSpectrum[®]presently deployed in many commercial 40-Gbit/s systems
- Aug. '94 - Sept. '98 Associate Professor, Dept. of EE - Systems, USC
April '96 - June '04 Associate Director, Student Affairs, NSF-Sponsored Engineering Research Center in Integrated Media Systems, USC
- Spring '98 **Visiting Fulbright Prof.**, Physics Dept., Weizmann Institute of Science, Israel
Apr. '94 – Present Associate Director, Center for Photonic Technology (CPT), USC
Jan. '92 - Present **Director, Optical Communications Laboratory**, USC
Jan. '92 - July '94 Assistant Professor, Dept. of EE - Systems, USC
Nov. '90 - Jan. '92 **Member of Technical Staff, Bell Comm. Research**, Photonics Research Dept.
- Fiber Optic Wavelength-Division-Multiplexed Communication Systems
- Oct. '88 - Oct. '90 **Postdoctoral Member of the Technical Staff**, Crawford Hill Lab
AT&T Bell Laboratories, Photonics Networks and Components Research Department, Postdoctoral Supervisor: **Dr. Ivan Kaminow**
- Fiber Optic Wavelength-Division-Multiplexed Communication Systems
- Sept. '84 - Aug. '88 Graduate Research Assistant, **Columbia University**, Microelectronics Science Lab & NSF Center for Telecommunications Research
- Laser-Fabricated Integrated Optical Components
- Fall '87 **Instructor, Columbia Univ.**, “Fundamentals of Circuits and Systems”
June '87 Visiting Scientist, Naval Research Laboratory - Modulation Spectroscopy
Summers '83, '84 Summer Technical Staff, **David Sarnoff Research Center, RCA Labs**
Fall '83 Teaching Assistant, Columbia Univ., Solid State Devices

HONORS:

Member, U.S. National Academy of Engineering ('16)

International Fellow of the U.K. Royal Academy of Engineering ('10)

Of the 4 Int'l Fellows elected from the US in '10, the other 3 were Drs. Howard Bruschi (former Westinghouse CTO), Robert Langer (MIT Institute Professor) and Charles Vest (former MIT President and NAE President).

Ellis Island Medal of Honor ('20)

Awarded annually to a group of distinguished American citizens who exemplify a life dedicated to their community and the world at large.

IEEE Eric E. Sumner Award ('14)

One "Technical Field Award" in Communications from the entire IEEE.

Vannevar Bush Faculty Fellowship (U.S. DoD) ('16)

Formerly Defense Security Science & Engineering Faculty Fellowship (NSSEFF)

J. J. Thomson Medal for Achievement in Electronics, Institution of Engineering & Technology (IET) ('16)

Steven and Kathryn Sample Endowed Chair in Engineering ('10)

Inaugural holder of endowed chair named after the former USC president.

Fellow of the National Academy of Inventors ('15)

'09 Nobel Prize Ceremonies, "invited foreign dignitary representing sciences"

Thomas Eggleston Medal for Distinguished Engineering Achievement ('17)

Highest honor given to a Columbia engineering graduate for a lifetime of achievement in the engineering profession by the Columbia University Engineering Alumni Association. Notable winners include Edwin H. Armstrong, Harvey S. Mudd, Hyman G. Rickover.

Albert Nelson Marquis Lifetime Achievement Award from Marquis Who's Who Publications Board ('17)

Viterbi School of Engineering Senior Research Award ('19)

Honorary Professor, Huazhong Univ. of Science & Technology (HUST) ('16)

HUST is one of the top 10 universities in China.

Honorary Doctorate, *Honoris Causa*, Yeshiva University, Commencement ('12)

John Simon Guggenheim Foundation Fellowship ('12)

Presidential Faculty Fellows Award ('94)

30 awards are given annually by the **White House** to faculty in all areas of science and engineering. Sponsored by the NSF.

David & Lucile Packard Foundation Fellowship in Science & Eng. ('93)

20 awards given annually in science and eng. One of three engineering awards.

NSF National Young Investigator Award ('92)

Formerly the **Presidential** YI Award.

HONORS: (CONTINUED)

Fulbright Foundation Senior Scholar Fellowship Award ('98)

Pursue research and lecturing at the Weizmann Institute of Science.

Optical Society of America (OSA) Paul Forman Eng. Excellence Award ('10)

One award given in 2010 for technical achievements in optical engineering.

IEEE Photonics Society Engineering Achievement Award ('11)

One award given in 2011 for technical achievements in photonics.

Optical Society of America (OSA) Leadership Award / New Focus Prize ('09)

One given for significant contribution to society or impact on optics.

SPIE President's Award ('13)

Fellow – American Assoc. for the Advancement of Science (AAAS) ('12)

Fellow – Institute of Electronic and Electrical Engineers (IEEE) ('04)

Fellow - Optical Society of America (OSA) ('96)

Fellow – Society for Photo-Instrumentation Engineers (SPIE) ('10)

Fellow - Institution of Engineering & Technology (IET) ('16)

Best Contributed Technical Article, '01 Eddy Award, Pennwell Publications

One award from all 30 magazines in Pennwell's Advanced Technology Division.

Best Paper Award, IEEE Globecom Conference ('14)

Paper Selected as one of the '07 Highlights of *Nature Photonics* by its Editors

Paper Selected: NP, vol. 1, no. 2, pp. 87-88, 2007.

USC Associates Award, University-Wide Creativity in Research ('12)

Two awards given from >2,000 professors at USC. Highest research award.

USC Associates Award, University-Wide Excellence in Teaching '03

Two awards given from >2,000 professors at USC. Highest teaching award.

Phi Kappa Phi Faculty Recognition Award ('16)

4 given at USC Academic Honors Convocation for significant scholarly work

IEEE Photonics Society Distinguished Lecturer Award (99', 00')

4 annual awards to present a distinguished lecture to local chapters worldwide.

IEEE Photonics Society Distinguished Service Award '03

1 annual award that recognizes exceptional individual contribution of service.

HP Labs Research Innovation Award '08, '09, '10 (see also *Grants*)

Northrop USC Outstanding Junior Eng. Faculty Research Award '94

Given to the **highest ranked** Asst. Prof. in the USC School of Engineering.

Phi Kappa Phi Academic Honor Society, Faculty Inductee '04

Northrop/USC Best Electrical Eng. Research Impact Faculty Award '05

TRW USC School of Engineering Best Teacher Award '99

Teaching award given to the highest ranked teacher in the School of Eng.

NSF Alan T. Waterman Award Finalist ('95, '96, and '97)

HONORS: (CONTINUED)

Outstanding Teaching Award, Elec. Eng. Dept., USC Eng. School ('95, '97)

The Okawa Foundation Research Award '00

Senior Member – IEEE ('94)

Taiwan Government Travel Grant (2008)

“Academician of Academia Sinica or International Renowned Scholar”

Edwin Howard Armstrong Foundation Memorial Award

Given to the **highest ranked** Columbia Univ. Elec. Eng. Masters Student

IEEE LEOS Figure Contest Winner (L. Zhang, et al.) (2008)

Fellow - Semiconductor Research Corporation - Doctoral Research

Marquis Who's Who in America; ... in the World; ... in Science & Eng.

NATO/NSF Summer Fellowship (1985) - Italy

Columbia University Departmental Fellowship (9/83-5/86)

Dr. Samuel Belkin Scholar Award: Yeshiva University

Head Delegate to the Harvard Model United Nations from Yeshiva University

Magna Cum Laude: Yeshiva University

Student Council Member & Junior Class Vice-President: Yeshiva University

Valedictorian (high school); Editor-in-Chief, Yearbook (high school)

JOURNAL EDITOR:

Editor-in-Chief, OSA Optics Letters ('08-'13)

#1 ranked Optics publication for 2007 in terms of ISI Impact Factor

Editor-in-Chief, IEEE/OSA Journal of Lightwave Technology ('01-'06)

Editor-in-Chief, IEEE J. of Selected Topics in Quantum Electronics ('99-'01)

Associate Editor, IEEE/OSA J. of Optical Communications & Networking ('09-'11)

Associate Editor, IEEE Journal of Selected Areas in Communications,
Series on Optical Communications and Networks (2002-2009)

Associate Editor, IEEE/OSA Journal Lightwave Technology (1995-2000)

Guest Editor, MDPI Journal of Applied Sciences

Special Issue on Novel Insights into Orbital Angular Momentum Beams: From Fundamentals and Devices to Applications ('19)

Guest Co-Editor, Light: Science & Applications,

Special Issue, Twisted Light with Orbital Angular Momentum ('17)

Guest Editor, IEEE/OSA Journal of Lightwave Technology, Special Issue,
A Third of a Century of Lightwave Technology Jan. 1983-Apr. 2016 ('16)

Guest Editor, IEEE Journal of Selected Topics in Quantum Electronics,
Special Issue, Optical Waveguides: Technologies and Applications ('16)

Guest Editor, Nanophotonics (a de Gruyter journal),

Special Issue, Advances in Optical Fiber Technology ('14)

Guest Editor, IEEE Journal of Selected Topics in Quantum Electronics,
Special Issue, Optical Modulators - Technologies and Applications ('13)

Guest Editor, IEEE Journal of Selected Areas in Communications,
Special Issue, Next-Generation Broadband Optical Access Network Techn. ('10)

Guest Editor, IEEE/OSA Journal of Lightwave Technology,
Special Issue on the 25th Anniversary of JLT (May '08)

Guest Editor, Applied Physics-A (a Springer Verlag journal),

Special Issue on Photonic Interconnects (Dec. 2008)

Guest Editor, OSA Journal of Optical Networking,

Special Issue on Optical Code-Division-Multiple-Access (2007)

Guest Editor, IEEE Journal of Selected Topics in Quantum Electronics, Special Millennium Issue (Dec. 2000)

Guest Editor, IEEE Journal of Quantum Electronics

Focus Issue on Ultra-High-Bandwidth Optical Transmission Systems (Nov. 1998)

Guest Editor, IEEE/OSA Journal of Lightwave Technology & IEEE

Journal of Selected Areas in Communications, Joint Special Issue,
Multiple-Wavelength Technologies and Networks (June '96)

PROFESSIONAL ACTIVITIES:

The Optical Society (OSA) (Membership ~20,000)

Past-President (2017)

President (2016)

President-Elect (2015)

Elected Vice President (2014)

U.S. National Academy of Engineering, Member Search Committee, Section 7,

- **Chair** (2018)

- **Vice-Chair** (2017)

- **Past Chair** (2019)

Member, Technical Program Committee,
Workshop on Orbital Angular Momentum, IEEE International Communications
Conference (ICC) ('20)

Member, Technical Program Committee,
OSA Topical Meeting on Adaptive Optics, OSA Imaging and Applied Optics
Congress, Vancouver, Canada ('20)

Member, Technical Program Committee,
SPIE Photonics West, Advanced Optical Techniques for Quantum Information,
Sensing, and Metrology conference ('20)

Member, Tingye Li Memorial Scholarship Nomination Review Committee,
Photonics Society of Chinese Americans (PSC) ('20)

Co-Chair, Workshop on High Capacity Point-to-Point Wireless
Communications Program,
IEEE Global Communications Conference (GLOBECOM) ('19)

Co-Chair, Workshop on Electromagnetic Wave Transmission with Orbital
Angular Momentum,
IEEE International Conference on Communications (ICC) ('19)

Member, Planning Committee,
DMMI Workshop on Domestic Manufacturing Capabilities for Critical DoD
Applications: Emerging Needs in Quantum-enabled Systems, National
Academies ('19)

Member, National Academies Review Panel
*“An Assessment of the National Institute of Standards and Technology
Physical Measurements Laboratory”* ('19)

Member, Distinguished Service Award Committee,
IEEE Photonics Society ('19)

PROFESSIONAL ACTIVITIES: (CONTINUED)

Honorary Chairs,

Asia Communications and Photonics Conference (ACP), Chengdu ('19)

Co-Chair, Charles Kao's Symposium on Optical Fiber Communications,
Asia Communications and Photonics Conference (ACP), Chengdu ('19)

Mentor, Undergraduate Engineering/Robotics Club
Yeshiva Univ. (Yeshiva College and Stern College) ('18-'19)

Member, Department of Defense Bush Fellows Research Study Team ('18-'20)

Member, OSA Nominating Committee ('17-'19)

Member, Editorial Board,
Progress in Electromagnetics Research (PIER) ('17-'19)

Member, Independent Technical Advisory Board,
DoD Applied Research for the Advancement of S&T Priorities (ARAP) Defense
Optical Channel Program (DOC-P) ('17-'19)

Member, International Advisory Committee (IAC),
The Optics & Photonics Taiwan ('17)

Chair, Committee,
IEEE Eric Sumner Technical Field Award ('16-'18)

Member, SRI Technology Council ('16-'19)

Member, Technical Program Committee, Subcommittee Photonics in Switching
System and Related Technologies, Photonics in Switching ('16)

General Co-Chair,

IEEE/OSA/SPIE Asia Communications & Photonics Conference, Wuhan ('16)

Co-Organizer, Workshop on Twisting Light with Orbital Angular Momentum
(OAM): Advances and Opportunities,
IEEE/OSA/SPIE Asia Communications & Photonics Conf (ACP), Wuhan ('16)

National Spectrum Consortium (NSC) Representative, Subject Matter Expert,
Communications Assessment Working Group ('16)

Member, Technical Program Committee,
SPIE Photonics West, Conference on Advances in Photonics of Quantum
Computing, Memory, and Communication ('16-'19)

Member, Conference Program Committee,

PROFESSIONAL ACTIVITIES: (CONTINUED)

SPIE Photonics West, High-Contrast Metastructures IV Conference ('15-'20)

Chair, Steering Committee,
National Photonics Initiative (NPI) ('15-'17)

Member, Organizing Committee,
Conference FIAT LUX on the International Year of Light (IYL), Rome ('15)

Member, International Advisory Board,
School of Engineering Sciences (SES) of Huazhong University of Science and
Technology (HUST), Wuhan, China ('14-'17)

Member, Technical Program Committee,
European Conference on Optical Communications (ECOC) ('13, '14, '15)

Member, Technical Program Committee, Systems Subcommittee,
Photonics in Switching ('13, '14)

Member, **U.S. Army Science Board** ('14-'20)

Member, **Foundation Board of Directors**, OSA ('14)

Member, **Advisory Board**, National Science Review ('14)

Consultant Member, U.S. Army Science Board ('13-'14)

Co-Organizer, Section on Optics and Photonics: An International Perspective,
American Association for the Advancement of Science (AAAS) Annual
meeting, Chicago ('14)

Chair-Elect and Member, Steering Committee
National Photonics Initiative (NPI) ('13-'14)

Chair, Unclassified Technical Program,
IEEE MILCOM (San Diego, CA) (2013)

Co-Chair, U.S. National Academies Committee for NRC Study,
“*Optics and Photonics: Essential Technologies for Our Nation*” (2011-2012)

Chair, Steering Committee,
APS/IEEE/OSA Conf. on Lasers & Electro-Optics (CLEO) ('08-'10&'10-'12)

Member, **Defense Science Research Council**,
Council submits reports to DARPA Director and Office Directors ('09-'14)

Elected Member-at-Large, Section on Engineering,

PROFESSIONAL ACTIVITIES: (CONTINUED)

American Association for the Advancement of Science (AAAS) ('12-'16)

Member, 2015 IEEE Eric E. Sumner Award Committee ('15-'16)

Member, Steering Committee,
Optoelectronics Communications Conference (OECC) ('14)

Member, Technical Program Committee,
22nd Wireless and Optical Communication Conference ('13)

Member, Technical Program Committee, Systems Subcommittee,
Photonics in Switching ('13, '14)

Member, External Advisory Committee,
Department of Electrical & Computer Eng., Johns Hopkins Univ. ('09-'12)

Member, International Advisory Committee,
International Conference on Fiber Optics and Photonics, Madras ('12)

Member, Technical Program Committee,
European Conference on Optical Communications (ECOC) ('12)

Member, Technical Program Committee, Globecom GC12,
Optical Networks & Systems Symposium (ONS) (2012)

Member, Technical Program Committee, Systems Subcommittee,
Photonics in Switching 2012

National Academy of Engineering Representative,
US Advisory Committee, International Commission on Optics ('10-'12,'13-'15)

Co-Chair, Technical Program Committee, SPIE Photonics West,
Conference on High Contrast Metastructures (OE131), San Francisco ('12)

General Co-Chair, OSA Topical Meeting on
Signal Processing in Photonic Communications (SPPCOM), Toronto (2011)

IEEE Photonics Society (Membership~7,000)

(Formerly the IEEE Lasers & Electro-Optics Society (LEOS))

President (2006-2007)

Past-President (2008-2009)

President-Elect (2004-2005)

Member, Strategic Planning Committee,
IEEE Technical Activities Board (2011-2013)

PROFESSIONAL ACTIVITIES: (CONTINUED)

Member, Board of Editors, OSA ('08-'13)

Chair, Awards Committees, IEEE Photonic Society (2010)

Member, Technical Program Committee, IEEE Photonics Society,
Summer Topical Meeting on Terabit Optical Ethernet, Montreal (2011)

Member, International Advisory Committee,
IQEC / CLEO Pacific Rim Conference, Sydney (2011)

Member, Technical Program Committee,
7th Workshop on Fibre Optics & Passive Components, July, Montreal (2011)

Member, International Advisory Committee,
1st International Postgraduate Student Conference (PGSC), Singapore (2011)

Member, Conference Program Committee, SPIE Photonics West,
Free-Space Laser Communication Technologies XXIII (2011)

Program Co-Chair, OSA Topical Meeting on
Signal Processing in Photonic Communications (SPPCOM), Germany (2010)

Symposium Co-Chair, European Conf. on Optical Communications (Italy) ('10)
C. Kao's Nobel Prize & Early Development of Optical Fibres and Optical Comm.

Member, Technical Program Committee,
European Conference on Optical Communications (ECOC) ('00, '11, '12)

Chair ('08) and Member ('10), Int'l Advisory Committee,
IEEE Photonics Global Singapore

General Co-Chair, IEEE Photonics in Switching Conference, Pisa, Italy (2009)

Member, Board of Visitors,
Army Research Office (ARO) Electronics Division ('10)

Member, Technical Program Committee,
OSA Topical Meeting on Photonics in Switching, Monterey, CA ('10)

Member, Technical Program Committee,
Optical Networks & Systems Symposium, IEEE Globecom, Miami ('10)

Member, International Advisory Committee (IAC),
BGPP'10 (Bragg Gratings, Photosensitivity, & Poling), Germany ('10)

Member, International Advisory Committee,

PROFESSIONAL ACTIVITIES: (CONTINUED)

3rdInt'l Photonics & OptoElectronics Meetings (POEM), Wuhan ('10)

Co-Chair, Technical Subcommittee,
Optical Transmission Systems, Switching and Subsystems,
IEEE/OSA/SPIE Asia Communications & Photonics Conf (ACP), Shanghai ('09)
Member, Conference Committee, IEEE/LEOS Summer Topical Meeting,
The Future Global Network, CA (2009)

Member, Conference Committee, IEEE/LEOS Summer Topical Meeting,
Optical Code Division Multiple Access (OCDMA), CA (2009)

Member, Publication Advisory Board,
OSA's Advances in Optics & Photonics (AOP) ('08-'09)

Member, Editorial Advisory Board, Lightwave Magazine, Pennwell Publishers

Member, Int'l Advisory Committee,
8th Int'l Conf. on Optical Communications & Networks (ICOON), Beijing ('09)

Member, IEEE Photonics Soc. Distinguished Service Award Committee ('08,'09)

Member, Technical Program Committee, Globecom,
Optical Networks & Systems Symposium (ONSS), Hawaii (2009)

Member, Conference Program Committee, SPIE Photonics West,
Advanced Optical Concepts in Quantum Computing, Memory, & Comm. (2009)

Member, Conference Program Committee, SPIE Photonics West,
Free-Space Laser Communications, CA (2009)

Member, Tech. Prog. Comm., Symp. on Optical Fiber Devices & Applications,
Int'l Conf. on Materials for Advanced Technologies (ICMAT), Singapore (2009)

Member, OSA Review Committee of the J. of the Optical Society of Korea ('09)

Program Co-Chair, OSA Topical Meeting on
Coherent Optical Technologies and Applications (COTA) (2008)

Member, Technical Program Committee,
CS/IEICE Int'l Conference on Photonics in Switching, Sapporo, Japan (2008)

Member, Tech. Prog. Comm., ONS (Optical Networks & Systems Symposium),
IEEE Int'l Conference on Communications (ICC) (2008, 2009)

Member, Optical Network & Broadband Access Subcommittee,
Opto-Electronics and Communications Conference, Sydney (2008)

PROFESSIONAL ACTIVITIES: (CONTINUED)

Chair, Ethics and Conflict Resolution Committee,
IEEE Technical Activities Board (TAB) (2007)

Member, Strategic Planning Committee,
IEEE Technical Activities Board (2008-2010)

Member, New Initiatives Committee, IEEE-Wide Committee (2008)

General Co-Chair, OSA Topical Meeting on Slow & Fast Light (2007)

Member, Ethics and Member Conduct Committee Hearing Panel,
IEEE Institute-Wide (2006-2008)

Member, Frederic Ives Medal/Jarus Quinn Endowment Award Committee,
highest award of the Optical Society of America (OSA) ('06,'07)

Member, International Program Committee (IPC),
International Association of Science & Technology for Development (IASTED)
Int'l Conf. on Wireless and Optical Communications (WOC), Quebec 2008
Int'l Conf. on Communication, Internet & Info. Tech. (CIIT), Banff (2007)
Int'l Conf. on Power and Energy Systems, Thailand (2007)
Int'l Conf. on Wireless and Optical Communications, Montreal (2007)

Co-Organizer, Workshop on Slow Light,
Conference on Optical Fiber Communications 2007

Chair, Steering Committee, AOE Expo and Conference, Shanghai (2007)

Program Co-Chair, OSA Topical Meeting on Slow & Fast Light (2006)

Chair, Communications Subcommittee, OSA Topical Meeting
Coherent Optical Technologies and Applications (COTA) (2006)

**Co-Chair, Science and Engineering Council (2001-2003),
Optical Society of America (OSA) (Total Membership~15,000)**

Workshop Co-Chair, The Future of Optical Telecommunications,
European Conf. on Optical Communications (Cannes) ('06)

Chair, External Int'l Review Panel, Research Program in Network Technol.,
National ICT Australia (NICTA), University of Melbourne ('06-'07)

Member, Technical Program Committee, IEEE LEOS Summer Topical Meetings
Quantum Communications in Telecom Networks (2006)

PROFESSIONAL ACTIVITIES: (CONTINUED)

Member, Board of Directors, NSERC Canada Research Center,
Agile All-Photonics Networks (AAPN) ('05-'10)

Chair, Membership Committee,
IEEE Lasers & Electro-Optics Society (LEOS) ('04-'06)
Member, Technical Program Committee, Photonics in Switching,
OSA Topical Meeting, Greece (2006)

Member, International Program Committee, IASTED,
Int'l Conf. on Comm., Internet and Information Tech., St. Thomas, USVI ('06)

Chair, Distinguished Service Award Committee,
IEEE Lasers & Electro-Optics Society (LEOS) ('04,'05,'06)

Chair, Planning Committee, Science & Engineering Council,
Optical Society of America (OSA) ('04)

Member, Technical Program Committee, Optical Signal Processing,
IEEE LEOS Summer Topical Meetings (2005)

Member, Technical Program Committee,
Photonic Technologies for Communications, IEEE Globecom, St. Louis (2005)

Member, Technical Prog. Committee, Optical Systems & Networks Symposium
IEEE International Communications Conference (ICC) 2006, Turkey

Member, International Steering Committee, Asia-Pacific Optical and Wireless
Communications Conference (APOC), Beijing, Shanghai, Korea ('04,'05,'06)

Member, International Advisory Committee,
Symp. on Technology Fusion of Optoelectronics and Communications (STFOC),
International Conference on Photonics ('05)

Steering Committee, Conf. on Optical Fiber Communications (**OFC**) (99-04)
Budget Subcommittee ('02-'03)
Long-Range Planning Committee ('03-'04)

**Vice-President, Technical Affairs (1996-1999),
IEEE Lasers & Electro-Optics Society (LEOS) (Membership~7,500)**

Responsible for all Technical Affairs, including Technical
Council, Standards Committees, & Gov't Liaison Committees

Conference on Lasers and Electro-Optics (CLEO)
(>1000 invited & contributed papers, >6000 attendees)

General Co-Chair (2003)

PROFESSIONAL ACTIVITIES: (CONTINUED)

Program Co-Chair (2001)

Member, Long Range Planning Subcomm., Steering Committee ('03)

Co-Chair, Lasers and Electro-Optics Applications Program (2002)

Committee Chair, Lightwave Communications (2000)

Member, Program Committee ('97, '98, '99)

Member, **Board of Directors, OSA (2001-2003)**

Workshop Co-Chair, Ultra-High Capacity Optical Communications and Networking: Challenges in Broadband Optical Access, Materials Processing, and Manufacturing, National Science Foundation (2002)

Chair, Distinguished Traveling Lecturer Awards Committee, IEEE LEOS ('02)

Member, Curriculum Committee, NSF-Funded Advanced Technology Education (ATE) Planning Grant for the California Optical and Photonics Technology Education Center (Cal-OPTEC) at San Jose City College ('03-'04)

Member, Technical Program Committee, Optical Interconnects,
IEEE LEOS Summer Topical Meeting '04

Member, Technical Program Committee, IASTED,
Int'l Conf. on Optical Communication Systems & Networks, Banff, Canada (04)

Member, **Technical Program Committee**, Photonics In Switching, Paris ('03)

Member, International Advisory Committee, Asia-Pacific Optical and Wireless Communications Conference (APOC), Wuhan, China ('03)

Member, **Advisory Board**, Photonics Technology Access Program (PTAP),
Optoelectronics Industry Development Association

Member, **Public Policy Committee**, OSA ('03)

Member, **Publications Council**, Liason to Science & Eng. Council, OSA ('03)

Member, **Board of Editors**, OSA ('01-'6)

Member, **Finance Committee**, OSA ('02-'04)

Member, **Nominating Committee for President and Directors**, OSA ('00)

Elected Member of the Board of Governors, IEEE LEOS ('98-'01)

Member, Technical Program Committee, IASTED,
Int'l Conf. on Comm., Internet & Information Technology, Scottsdale, AZ ('03)

PROFESSIONAL ACTIVITIES: (CONTINUED)

Member, **Technical Program Committees**,
IEEE LEOS Summer Topical Meetings '02:

- (1) Fast Optical Signal Processing in Optical Transmission Committee
- (2) Dynamic Enablers of Next-Gen Optical Comm. Systems Committee

Steering Committee Member,

IEEE Workshop on Fiber & Optical Passive Components, Sept., Italy (02,04,05)

Member, Technical Program Committee, IASTED,

Wireless & Optical Comm. Conference, Banff, Canada (2002)

IEEE Lasers and Electro-Optics Society (LEOS) Annual Meeting

(570 invited & contributed papers, ~ 800 attendees)

General Chair (1999)

Program Chair (1997)

Program Co-Chair, OSA Annual Meeting 2001

OSA Topical Meeting on Optical Amplifiers and Their Applications

General Co-Chair (1999)

Technical Co-Chair (1998)

Chair, Systems Applications (1997)

Program Committee Member (1996)

**Chair, Photonics Division, Technical Council,
Optical Society of America ('98-'00)**

Workshop Co-Chair, The Future Revolution in Optical Communications &
Networks, **National Science Foundation** (2000)

Member, Technical Program Committee, IEEE Microwave Photonics Conf. ('01)

Member, Optoelectronics Task Force, Semiconductor Research Corp. ('01)

Member, Technical Program Committee, CLEO Pacific Rim ('01)

Member, Technical Program Committee,

Optoelectronics Communications Conference (OECC), Sydney ('01)

Member, Technical Program Committee, Optical Networking Subcommittee,
Asia-Pacific Optical and Wireless Communications Conference (APOC)

- (1) Beijing ('01)
- (2) Shanghai ('02)

PROFESSIONAL ACTIVITIES: (CONTINUED)

Member, Technical Program Committee, SPIE, Photonics West,
WDM and Photonic Switching Devices for Network Applications, San Jose ('01)

Member, Technical Program Committee,
International Conference on Fiber Optics and Photonics, Calcutta ('01)

Chair, Standing Tech. Committee,
Optical Networks, **IEEE LEOS (1996-1999)**

Co-Chair, IEEE LEOS Summer Topical Meeting '98,
Broadband Optical Networks: An Emerging Reality

Member, **Scientific Advisory Board**, U.S./Japan Joint Optoelectronics
Project, **Optoelectronics Industrial Development Association**

Workshop Co-Organizer, Conference on Optical Fiber Communications
(1) Passive Optical Devices ('98)
(2) Systems Software Modeling ('98,'99,'00,'01)

Member, US Advisory Committee,
International Commission on Optics ('97-'02)

Member, IEEE Tech. Activities Board Subcommittee on
New Technology Directions '96, '97

Conference Program Committee, SPIE, Optical Comm., Taiwan ('98)

General Co-Chair, IEEE LEOS Summer Topical Meeting '97,
Technologies for the Global Information Infrastructure

Invited Workshop Participant, Frontiers in Engineering,
National Academy of Engineering (nominations of engineers <40 years old)

Chair, Optical Communications Technical Committee, **IEEE LEOS ('94-'96)**

Vice-Chair, Optical Communications Group, Technical Council,
Optical Society of America (OSA) (1993-1997)

Conference General Co-Chair, IEEE LEOS Summer Topical
Meeting '95, Technologies for the Global Information Infrastructure

Program Committee, System Technologies,
Conference on Optical Fiber Communications (OFC) '96, '97, '98

Program Committee, IEEE LEOS Summer Topical Meeting '96,
Broadband Optical Networks and Their Enabling Technologies

PROFESSIONAL ACTIVITIES: (CONTINUED)

Chair, Optical Communications Committee,
LEOS Annual Meeting '94,'95,'96

Standing Technical Committee,
IEEE LEOS, Optical Networks (1993-1996)
Program Chair, Telecommunications Engineering, Society of Photo-
Instrumentation Engineers (**SPIE**), Photonics West '95

Chair, Conf. on Emerging Technologies for All-Optical Networks,
SPIE '95, '96

Chair, Information & Comm., NSF Forum on Optical Science & Eng. ('95)

Chair, Symposium, System Modeling, Conf. on Integrated Photonics Res. '96

Technical Program Committee, Committee on Numerical Modeling, IPR '96

Awards Committee Member,
IEEE LEOS Fellows Selection Committee '00

Awards Committee Member,
IEEE LEOS Distinguished Traveling Lecturer Award '01, '03, '04

Awards Committee Member,
IEEE LEOS Wm. Streifer Scientific Achievement '96, '03, '04, '05

Awards Committee Member, IEEE LEOS Quantum Electronics Award '97

Technical Committee, IEEE Interconnects Workshop (1996)

Chair, Panel on Optical Information and Communications, Workshop on Optical
Science and Engineering, National Science Foundation (1994)

Technical Program Committee, Symposium Organizer,
Optical Society of America Annual Meeting:

'98 (WDM Systems)
'96 (Optical Networks)
'95 (Wavelength Conversion Techn.)
'92 (EDFA Appl.: Distribution)

Conf. Program Committee, SPIE,
Components for WDM ('95,'99,'00,'01,'02)

Program Committee, IEEE/ACM/SPIE Workshop on Optical Networks, 2000

PROFESSIONAL ACTIVITIES: (CONTINUED)

Standing Technical Committee, IEEE LEOS, Optical Comm. ('92-'94)

Program Committee, IEEE LEOS Ann. Meeting '92,'93; Lightwave Comm.

Review Panel Member, NSF, Optical Communications
('92,'93,'94,'95,'97,'98,'03)

TEACHING:

STUDENT EVALUATIONS

I. Univ. of Southern California (5.0 is highest possible score)

Undergraduate Course: Introduction to Communications (EE 467)

1. Spring '19: **4.83/5.0**, 21 students, 18 had evaluated
2. Spring '18: **5.0/5.0**, 27 students, 16 had evaluated
3. Spring '17: **4.91/5.0**, 15 students, 11 had evaluated
4. Spring '16: **4.96/5.0**, 27 students, 27 had evaluated
5. Spring '15: **4.96/5.0**, 27 students, 24 had evaluated
6. Spring '14: **4.84/5.0**, 25 students, 19 had evaluated
7. Spring '13: **5.0/5.0**, 21 students, all had evaluated
8. Spring '12: **4.94/5.0**, 20 students, 18 had evaluated
9. Spring '11: **5.0/5.0**, 22 students, 18 had evaluated
10. Spring '10: **5.0/5.0**, 19 students, 16 had evaluated
11. Spring '09: **5.0/5.0**, 10 students, all had evaluated
12. Fall '07: **5.0/5.0**, 11 students, all had evaluated
13. Fall '06: **5.0/5.0**, 10 students, 9 had evaluated
14. Fall '04: **5.0/5.0**, 11 students, all had evaluated
15. Fall '03: **5.0/5.0**, 7 students, all had evaluated
16. Fall '02: **5.0/5.0**, 11 students, all had evaluated
17. Fall '01: **5.0/5.0**, 21 students, all had evaluated
18. Fall '00: **5.0/5.0**, 20 students, all had evaluated
19. Fall '99: **5.0/5.0**, 22 students, 21 had evaluated
20. Fall '98: **5.0/5.0**, 18 students, all had evaluated
21. Fall '97: **5.0/5.0**, 22 students, all had evaluated
22. Fall '96: **4.92/5.0**, 14 students, all had evaluated
23. Fall '95: **5.0/5.0**, 8 students, all had evaluated
24. Fall '94: **5.0/5.0**, 9 students, all had evaluated
25. Fall '93: **5.0/5.0**, 8 students, all had evaluated
26. Fall '92: **5.0/5.0**, 13 students, all had evaluated

Graduate Course: Optical Fiber Communications Systems (EE 558)

1. Fall '18: **4.91/5.0**, 25 students, 23 had evaluated
2. Fall '17: **4.95/5.0**, 24 students, 22 had evaluated
3. Fall '16: **4.94/5.0**, 22 students, 17 had evaluated
4. Fall '15: **5.0/5.0**, 24 students, 19 had evaluated
5. Fall '14: **4.95/5.0**, 29 students, 22 had evaluated
6. Fall '13: **5.0/5.0**, 26 students, 24 had evaluated
7. Fall '11: **4.88/5.0**, 29 students, 24 had evaluated
8. Fall '10: **4.96/5.0**, 35 students, 28 had evaluated
9. Fall '09: **4.97/5.0**, 31 students, 30 had evaluated

10. Fall '08: **4.94/5.0**, 33 students, all had evaluated
11. Spring '08: **4.88/5.0**, 28 students, 25 had evaluated
12. Spring '07: **4.92/5.0**, 29 students, 24 had evaluated
13. Spring '06: **5.0/5.0**, 20 students, 17 had evaluated
14. Spring '05: **4.97/5.0**, 31 students, 29 had evaluated
15. Spring '04: **4.91/5.0**, 24 students, 23 had evaluated
16. Spring '03: **4.88/5.0**, 26 students, 25 had evaluated
17. Spring '02: **4.73/5.0**, 30 students, all had evaluated
18. Spring '01: **5.0/5.0**, 25 students, 24 had evaluated
19. Spring '00: **4.95/5.0**, 22 students, all had evaluated
20. Spring '99: **5.0/5.0**, 17 students, all had evaluated
21. Spring '97: **4.79/5.0**, 23 students, all had evaluated
22. Spring '96: **4.93/5.0**, 29 students, all had evaluated
23. Spring '95: **4.97/5.0**, 31 students, all had evaluated
24. Spring '94: **4.93/5.0**, 28 students, 27 had evaluated
25. Spring '93: **4.93/5.0**, 40 students, all had evaluated
26. Spring '92: **4.72/5.0**, 19 students, all had evaluated

II. Columbia Univ. (while a graduate student) (10.0 is highest possible score)

Undergraduate Course: Fundamentals of Circuits and Systems

1. Fall '87: **8.3/10.0**, 110 students, 93 had evaluated

Ph.D. THESES ADVISED AND GRANTED:

1. Syang-Myau Hwang, 10/95, "System Performance and Channel Equalization of Optically-Amplified WDM Long-Distance Links and Ring Networks"
2. Andrew David Norte, 1/96, "Experimental Demonstrations of Wavelength Routing Functions for an All-Optical Wavelength-Division-Multiplexed Fiber Optic Communication Network Switching Node"
3. William Shieh, 3/96, "Experimental and Theoretical Study of All-Optical Wavelength Shifting Techniques by using Semiconductor Optical Amplifiers"
4. Eugene Park, 3/96, "Applications of All-Optical Wavelength Shifting using Semiconductor Optical Amplifiers for Switching and Routing Functions in a Dynamically Reconfigurable Wavelength-Division-Multiplexed Fiber-Optical Communication Network"
5. James E. Leight, 8/96, "System and Network Implementations of 2-D Multiple-Plane Wavelength-Division-Multiplexed Optical Interconnects"
6. J.-C. Wu, 8/96, "Protocols and Design Tradeoffs for Packet-Switched WDM Networks with Large Tuning Latencies"
7. M. Imran Hayee, 12/98, "Modeling of Dispersion and Nonlinearities in High-Performance Transmission"
8. Jin-Xing Cai, 6/99, "Experimental Demonstrations of Techniques to Improve System Performance in Non-Static Optical Wavelength Division Multiplexing Systems and Networks"
9. Kai-Ming Feng, 6/99, "System Performance Improvement in Optical Wavelength Division Multiplexing Systems and Networks using Optical Gratings"
10. Jong-Jin Yoo, 12/99, "System Performance and Network Structure of Two-Dimensional Multiple-Plane WDM Optical Interconnects"
11. Steve A. Havstad, 9/00, "Generation, Filtering, and Applications of Subcarriers in Optical Communication Systems"
12. Sanggeon Lee, 9/00, "Characterization and Compensation of Polarization Mode Dispersion and Chromatic Dispersion Slope Mismatch for High Bit-Rate Data Transmission"
13. Reza Khosravani, 10/00, "Reduction of Signal Degrading Effects in Wavelength Division Multiplexed Systems and Networks"
14. Mustafa C. Cardakli, 1/01, "Optical Techniques to Implement Networking Functions in Dynamically Reconfigurable Wavelength-Division-Multiplexed Fiber-Optic Communication Networks"
15. Olaf H. Adamczyk, 2/01, "Experimental Demonstration of Techniques to Improve System Performance in Fiber-Optic Communication Systems using Subcarrier-Multiplexed and Digital Baseband Signals"
16. Zhongqi Pan, 11/02, "Overcoming Fiber Dispersive Effects in High-Speed Reconfigurable Multi-Wavelength Optical Systems and Networks"
17. Asaf B. Sahin, 4/03, "Experimental Demonstration of Techniques to Improve System Performance in Non-Static Microwave Frequency Analog and Digital Signal Transmission over Fiber-Optic Communication Systems"

Ph.D. THESES ADVISED AND GRANTED: (CONTINUED)

18. Deniz Gurkan, 5/03, "Experimental Demonstrations of Optical Networking Functions for Wavelength-Division-Multiplexed (WDM) Optical Networks"
19. Yong-Won Song, 10/03, "Mitigation of Signal Degradations in Reconfigurable Wavelength-Division-Multiplexed Fiber-Optic Communication Systems"
20. S.M. Reza Motaghian Nezam, 4/04, "Chromatic and Polarization Mode Dispersion Monitoring for Equalization in Fiber-Optic Communication Systems"
21. Paniz Ebrahimi, 5/04, "Design and Implementation of Novel Optical Subsystems for Enhancing Spectral Efficiency, Security, and Performance of High-Speed Wavelength Division Multiplexed and Optical Code-Division-Multiple-Access Systems"
22. Lian-Shan Yan, 11/04, "Investigation of Degrading Effects and Performance Optimization in Long-Haul WDM Transmission Systems and Reconfigurable Networks "
23. John E. McGeehan, 5/05, "Experimental Demonstration of Optical Router and Signal Processing Functions in Dynamically Reconfigurable Wavelength-Division-Multiplexed Fiber Optic Networks"
24. Changyuan Yu, 8/05, "Dispersive and Nonlinear Effects in High-Speed Reconfigurable WDM Optical Fiber Communication Systems"
25. Yan Wang, 12/05, "Monitoring and Utilization of Dispersive and Nonlinear Effects in High-Speed Reconfigurable WDM Optical Fiber Networks"
26. Ting Luo, 2/06, "Management of Dispersion, Nonlinearity and Polarization-Dependent Effects in High-Speed Reconfigurable WDM Fiber Optic Communication Systems"
27. Saurabh Kumar, 11/06, "Optical Signal Processing For High-Speed, Reconfigurable Fiber Optic Networks"
28. Poorya Saghari, 11/06, "Techniques for Increasing the Number of Users in Dynamically Reconfigurable Optical Code Division Multiple Access Systems and Networks"
29. Louis C. Christen, 9/08, "Detection and Optical Signal Processing using Phase Based Optical Modulation Formats"
30. Bo Zhang, 12/08, "Nonlinear Optical Signal Processing For High-Speed, Spectrally Efficient Fiber Optic Systems and Networks"
31. Lin Zhang, 11/10, "Silicon Integrated Devices for Optical System Applications"
32. Scott R. Nuccio, 12/10, "Applications of All Optical Signal Processing for Advanced Optical Modulation Formats"
33. Irfan Fazal, 7/11, "Optical Signal Processing for Enabling High-Speed, Highly Spectrally Efficient and High Capacity Optical Systems"
34. Jeng-Yuan Yang, 9/11, "Optical Performance Monitoring and Signal Processing to Enable Robust and Reconfigurable Optical Networks"
35. Xiaoxia Wu, 10/11, "High-Speed Optical Signal Processing and Performance Monitoring Towards Tbit/s Optical Networks"

Ph.D. THESES ADVISED AND GRANTED: (CONTINUED)

37. Omer Yilmaz, 12/11, "Advanced Nonlinear Optical Signal Processing Techniques For High Speed, Reconfigurable Optical Fiber Networks"
38. Yang Yue, 10/12, "Integrated Silicon Waveguides and Specialty Optical Fibers for Optical Communications System Applications"
39. Salman Khaleghi, 6/13, "High-Speed and Reconfigurable All-Optical Signal Processing for Phase and Amplitude Modulated Signals"
40. Reza Chitgarha, 6/14, "Reconfigurable High-Speed Optical Signal Processing and High-Capacity Optical Transmitter"
41. Hao Huang, 11/14, "Multiplexing Techniques and Reconfigurable Networking Functions for Optical Communications using OAM Beams"
42. Asher Voskoboinik, 12/14, "Sweep-Free Brillouin Optical Time-Domain Analyzer"
43. Nisar Ahmed, 1/16, "Orbital Angular Momentum based Spatially Multiplexed Optical and Millimeter-wave Communications"
44. Yan Yan, 4/16, "High Capacity Optical and RF/mm-wave Communications Utilizing Orbital Angular Momentum Multiplexing"
45. Yongxiong Ren, 11/16, "Orbital Angular Momentum-Based Space Division Multiplexing for High-Capacity Optical and Millimeter-Wave Communications"
46. Morteza Ziyadi, 01/17, "Reconfigurable High-Speed Optical Signal Processing Using Optical Frequency Comb for High-Capacity, Spectrally Efficient Fiber Optic Systems and Networks"
47. Guodong Xie, 12/17, "Using Waves Carrying Orbital Angular Momentum for Communications and Remote Sensing"
48. Changjing Bao, 12/17, "On-Chip Kerr Frequency Comb Generation and Its Effects on the Application of Optical Communications"
49. Ahmed Almainan, 4/18, "Optical Wave Mixing for Tunable Delays and High-Speed Signal Processing"
50. Amirhossein Mohajerin Ariaei, 5/18, "Reconfigurable High-Speed Processing and Noise Mitigation of Optical Data"
51. Long Li, 02/19, "Applications of Orbital Angular Momentum in High-Capacity Free-Space Optical Communications"
52. Yinwen Cao, 04/19, "Reconfigurable Optical Signal Processing for Efficient Spectrum Utilization in High-speed Optical Communication Systems"
53. Peicheng Liao, 11/19, "Microresonator-based Kerr Frequency Comb for Optical Communications and Signal Processing"

GRANTS:

National Science Foundation (NSF) Young Investigator Award (9/92-8/94), PI,
"Optical Fiber Communication Systems"

Advanced Research Projects Agency (ARPA) (8/93-7/96), Co-PI, "Two-Dimensional WDM Interconnects for Highly Parallel and Dense High-Speed Optical Processing", with C.J. Chang-Hasnain (Stanford Univ.)

Charles Lee Powell Foundation USC New Investigator Award (1/92-6/94), PI,
"WDM Amplified Optical Networks"

ILX Lightwave Corp. (10/92), University Donations Program Award, PI,
"WDM Systems Research using Wavelength-Tunable Lasers"

National Science Foundation (NSF) (9/93-8/96), Co-PI, "Wavelength Converting and Wavelength Routing for High-Efficiency Almost-All-Optical Networks," with V.O.K. Li and P.D. Dapkus (USC)

(Proposal ranked #1 out of 70 letters-of-intent and 33 final proposals)

David and Lucile Packard Foundation (10/93-9/99), PI, "Fellowship in Science and Engineering: WDM Optical Communications"

Advanced Research Projects Agency (ARPA) (8/94-7/96), Co-PI, "Optically-Amplified Scalable WDM Networks using Acousto-Optic Filters for Amplifier Gain Equalization and Signal Routing," with D.A. Smith (Case Western Reserve) and Kathryn D. Li (New Focus)

National Science Foundation, Presidential Faculty Fellows Award (9/94-8/97), PI,
"High-Capacity WDM Optical Communication Systems"

ILX Lightwave Corp. (4/95), University Donations Award, PI, "WDM Systems using Multi- λ VCSELs"

Ballistic Missile Defense Org., Focused Research Initiative (5/95-5/98),
"Multiscale Photonic Data Fusion Networks and Their Interfaces," **Senior Investigator** (PI - A.A. Sawchuk)

Optoelectronics Industry Development Assoc. / Joint Optoelectronics Project (OIDA/JOP) (2/96), PI,
"Ultra-High-Capacity WDM Switching Systems"

Defense Univ. Research Instrumentation Program (DURIP / ARPA) (5/96), Co-PI, "Transparent High-Speed Optically-Amplified Multiple-Wavelengths Networks using AOTFs for Add/Drop Multiplexing and Gain Equalization", with D.A. Smith (Case Western Reserve Univ.)

National Science Foundation (NSF) 7/96-6/06, "Multiwavelength Switching in High-Capacity Media Systems," Engineering Research Center in Integrated Media Systems, **Key Investigator** (PI - C.L. Nikias)

Defense Advanced Research Projects Agency (DARPA) (9/96-8/99), Co-PI, "Novel WDM Device and System Research for Ultra High Capacity Optical Interconnects", with C.J. Chang-Hasnain (UC Berkeley)

National Science Foundation (NSF) 8/96-7/97, Co-PI, Instrumentation Grant,
"Wired and Wireless High-Speed Networks," with R.A. Scholtz and J. Choma (USC)

National Science Foundation (NSF) 7/96-6/97, Co-PI, with L.A. McAdams (Optivision, Inc.), Small Business Technology Transfer (STTR) Program, "Novel Wavelength Shifting Structures for Optical Networks,"

GRANTS: (CONTINUED)

Joint Services Electronics Program (JSEP) (4/97-3/00), **Senior Investigator** (PI - W. Steier, USC),
"Ultra-High-Speed Wavelength and Time Switching for Bursty Communications"

Defense Advanced Research Projects Agency (DARPA) (9/97-8/00), **Senior Investigator** (PI - S.R.J. Brueck,
Univ. of New Mexico), "Optoelectronic Materials Center for Manufacturable, Multi-dimensional High Capacity
Optoelectronic Interconnects"

Defense Univ. Research Initiative Program (DURIP/ DARPA) (5/98-4/99), **Co-PI**, "2D VCSEL Arrays for
Optical Imaging, Interconnects, and Signal Processing," with C. Chang-Hasnain (UC Berkeley)

Defense Advanced Research Projects Agency (DARPA) (6/98-5/01), **PI**, "Using A Recirculating Fiber Loop
To Determine The Limitations Placed On Ultra-High-Performance Soliton And Linear Optical Systems By
Polarization Mode Dispersion," Next Generation Internet

National Science Foundation (NSF) (9/98-8/01), **Co-PI**, "Rapidly-Tunable Integrated Vertical Cavity Filters and
Attenuators For Dynamically Reconfigurable Packet-Switched WDM Optical Networks," with C. Chang-Hasnain
(UC Berkeley)

Optoelectronics Industry Development Assoc. / Joint Optoelectronics Project (OIDA/JOP) (2/98), **PI**,
"Ultra-High-Capacity WDM Networks"

Charles Lee Powell Foundation (7/98-6/01), **PI**, "Photonics Backbone for Wireless Communications"

ILX Lightwave Corp. (6/00), **University Donations Program Award**, **PI**,
"WDM Systems Research for the Next Generation Internet"

Defense Advanced Research Projects Agency (DARPA) (7/00-6/04), **Senior Investigator** (PI - S.R.J. Brueck,
Univ. of New Mexico), "Optoelectronic Materials Center for High Capacity Optoelectronic Interconnects"

Department of Defense (6/99-5/01), **PI**, "Compensation of Channel-Degrading Effects in Reconfigurable WDM
Systems"

Hitachi Corporation (10/99-6/01), **PI**, "Compensation of Polarization Mode Dispersion"

Phaethon Communications (10/00-11/02), **PI**, "Studies of Optical-Fiber-Induced Dispersion Effects"

Defense Advanced Research Projects Agency (DARPA) (6/00-5/03), **PI**, "Tunable Compensation of
Chromatic- and Polarization-Dispersion Effects for Enabling Significantly Higher Performance in the BOSSNET
and NTON SUPERNET Testbeds," Next Generation Internet Program

The Okawa Foundation (10/00-9/01), **PI**, "Ultra-High-Capacity Multi-Wavelength Optical Systems"

Intel Corporation (12/01-11/02), **PI**, "New Technologies for Internet Routing in All-Optical Networks "

National Science Foundation (NSF) (10/00-9/03), **PI**, "Novel Dispersion-Division-Multiplexing Technique for
Enabling Double the Spectral Efficiency in Transmission & Routing of Photonic & Microwave Networks"

National Science Foundation (NSF) (10/00-9/03), **Co-PI**, "Vertically-Integrated Primitives for a Bufferless All-
Optical Packet-Switched Network," with C. Chang-Hasnain and V. Anantharam (UC Berkeley)

GRANTS: (CONTINUED)

Defense Advanced Research Projects Agency (DARPA) (6/00-5/03), **Co-PI**, "Programmable Miniaturized Devices for CDMA WDM Systems," Chip-Scale WDM Program (PI - D.A.B. Miller, Stanford University)

Defense Advanced Research Projects Agency (DARPA) (6/00-5/03), **Co-PI**, "Microresonator and Photonic Crystal Filters, Lasers and Modulators for Analog and Digital Chip Scale WDM Systems," Chip-Scale WDM Program, (PI - P.D. Dapkus and J. O'Brien, USC)

JDS Uniphase Corporation (3/02), **PI**, "Equipment Donation for the Optical Communications Lab at USC"

Cisco Systems (9/03-8/04), **PI**, "Mitigation of Fiber Nonlinear Effects in PMD-Limited WDM Systems"

Virtual Photonics Inc. (5/03), **PI**, "Software Donation for the Optical Communications Lab at USC"

Defense Advanced Research Projects Agency (DARPA) (12/02-11/06), **PI**, "Secure Communications Over LANs using O-CDMA," OCDMA Program

Intel Corporation (1/03-12/04), **PI**, "Optical Buffers for Enhancing Optical Burst Switching"

Cisco Systems (9/04-8/05), **PI**, "Analysis of the Transmission Limitations of Directly Modulated Digital Signals in Metropolitan Optical Communication Systems"

Missile Defense Agency (10/03-9/04), **Co-PI**, "Measurements of Thin-Film Waveguides" (PI – Boyd Hunter, TPL, Inc.)

National Science Foundation (NSF) (9/03-8/06), **PI**, "High-Capacity Optical Communication Networks: Device and Systems Research using Photonic Crystal Structures that Enable Highly-Advanced Classical and Quantum Optical Networking," with A. Scherer (Caltech)

Defense Advanced Research Projects Agency (DARPA) (7/04-6/08), **Senior Investigator** (PI - S.R.J. Brueck, Univ. of New Mexico), "Optoelectronic Materials Center for Spatial, Temporal and Spectral Localization for Advanced Photonic Capabilities," University Photonics Research Program

Defense Advanced Research Projects Agency (DARPA) (4/04-10/05), **PI**, "DOD-N Network Performance Based on Specific Physical DOD-N Technology Parameters: Connecting Multiple Core Routers," DOD-N Program

Defense Advanced Research Projects Agency (DARPA) (7/04-9/08), **Co-PI** (PI – R.W. Boyd, Univ. of Rochester), "Applications of Slow Light in Optical Fibers," Slow Light Program

Intel Corporation (5/05-12/05), **PI**, "Measurements of Silicon-Based Photonic Filters"

Cisco Systems (9/05-8/06), **PI**, "Systems Measurements and Demonstrations of Cost-Effective Reach Extension and Monitoring using Intel-Fabricated Silicon-Based Waveguide Grating Filters"

National Science Foundation (NSF) (9/05-8/09), **Senior Investigator**, "NIRT: Integrated Nanophotonics for Quantum Computation and Quantum Information Processing" (PI – J.D. O'Brien, USC)

Hewlett Packard Corporation (10/05-1/06), **PI**, "Optical Interconnections"

Intel Corporation (1/06-12/06), **PI**, "Link Studies of Silicon Photonic Devices"

GRANTS: (CONTINUED)

National Science Foundation (NSF) (9/06-8/09), **Co-PI**, "A Hybrid Integrated Bidirectional Transparent RF-Optical Interface for Heterogeneous Data Traffic" (PI – H. Hashemi, USC)

Defense Advanced Research Projects Agency (DARPA) (10/06-7/07), **Co-PI** (PI – R. Beausoleil, Hewlett Packard), "Applications of Nanophotonics to Information Technology," Intra-Chip Communications Program (ARL)

Defense Advanced Research Projects Agency (DARPA) (7/07-6/08), **PI**, "Cisco: Variable-Bit-Rate and Multiple-Modulation Format DQPSK/ASK Receivers," Industrial Matching Program for the University Photonics Research Program

Cisco Systems (7/07-6/08), **PI**, "Techniques for Enhancing WDM Transmission Performance when using Advanced Modulation Formats at 40 Gb/s and Beyond"

Defense Advanced Research Projects Agency (DARPA) (7/07-6/08), **PI**, "Intel: Phase and Amplitude Response of Silicon Modulators for Optical Systems," Industrial Matching Program for the University Photonics Research Program

Intel Corporation, (7/07-6/08), **PI**, "Phase and Amplitude Response of Silicon Modulators for Optical Systems"

Optoelectronics Industry Development Association (OIDA), (11/07-3/08), **PI**, "High-Speed Optical Modulators," Photonics Technology Access Program (**PTAP**)

National Institute of Standards and Technology (NIST), (10/07-9/08), **PI**, "Optical Performance Monitoring to Enable Robust and Reconfigurable Optical Networks," Research Grants Program

Defense Advanced Research Projects Agency (DARPA) (1/08-12/10), **Co-PI** (PI – Ann C. Von Lehman, Telcordia), "Dynamic Resilient Terabit IP/Optical Networks," CORONET Program

Defense Advanced Research Projects Agency (DARPA) (1/08-6/12), **PI**, "Enhanced Performance & Functionality of Continuously-Tunable Optical Delays," POPS Program

Hewlett Packard Corporation (5/08-9/08), **PI**, "Micro-ring Resonators for Optical Interconnections"

Defense Security Cooperation Agency (DSCA) (8/09-7/11), **PI**, "Enabling Higher-Performance Nonlinearity-Based Optical Sensors: Advances in Sensitivity and Dynamic Behavior "

Defense Univ. Research Instrumentation Program / Air Force Office of Scientific Research (DURIP/AFOSR) (6/08-5/09), **PI**, "A 100-Gbit/s Base Multiplexer for Generation and Transmission of 400-Gbit/s Optical Polarization-Multiplexed Differential Quadrature Phase-Shift-Keying Signals"

Defense Advanced Research Projects Agency (DARPA) (6/08-5/09), **PI**, "Exploring Signal Distortion in an Ultra-Low-Loss Waveguide," iPhOD Program

Defense Advanced Research Projects Agency (DARPA) (9/08-8/09), **Co-PI** (PI – A.L. Gaeta, Cornell Univ.), "Large Tunable Delays in Fiber and On-Chip via Conversion/Dispersion," Slow Light Program

Hewlett Packard Corporation (8/08-7/09), **PI**, "Signal Processing in On-Chip Optical DWDM Networks," HP Labs Innovation Research Program (IRP)

GRANTS: (CONTINUED)

Defense Advanced Research Projects Agency (DARPA) (11/08-10/09), **Co-PI** (PI – Ann C. Von Lehman, Telcordia), "Data in the Optical Domain Networks (DOD-N) Enabling Technology Transition," DOD-N Program

National Science Foundation (NSF) 9/08-8/13, "Center for Integrated Access Networks (CIAN)," Engineering Research Center, **Thrust Leader** (PI - Nasser Peyghambarian, Univ. of Arizona)

Hewlett Packard Corporation (8/09-7/10), **PI**, "Signal Processing in On-Chip Optical DWDM Networks II," HP Labs Innovation Research Program (IRP)

Defense Advanced Research Projects Agency (DARPA) (11/09-5/14), **Co-PI**, "Ultra-low Loss, Chip-Based Hollow-Core Waveguide using High-Contrast Grating," integrated Photonic Delay (iPhoD) Program (PI: C.J. Chang Hasnain, UC Berkeley)

Gigoptix Corp. (11/09-10/10), **PI**, "High-Speed Modulation in Optical Communication Systems"

Hewlett Packard Corporation (8/10-7/11), **PI**, "Signal Processing in On-Chip Optical DWDM Networks III," HP Labs Innovation Research Program (IRP)

Defense Advanced Research Projects Agency (DARPA) (6/10-4/11), **PI**, "Optical Tapped-Delay-Line High-Speed Signal Processing," MTO Study

Cisco Systems (10/09-9/10), **PI**, "Novel Techniques to Enhance the Capacity Planning and Resource Management Efficiency of High-Capacity Optical Networks," Univ. Research Program

Defense Advanced Research Projects Agency (DARPA) (9/10-8/13), **Co-PI**, "The Ultimate Capacity-Achieving Receiver for Classical Optical Communications," Information on a Photon (InPho) Program (PI: S. Dolinar, JPL)

National Science Foundation (NSF) (11/11-10/16), **Co-PI**, Major Instrumentation Grant (MRI), "Development of Measurement and Testing Equipment for Distributed Wireless Communications," with A. Molisch (PI, USC).

Defense Univ. Research Initiative Program (DURIP/ONR) (12/11-11/12), **Co-PI**, "Ultra-wideband MIMO Channel Sounder for Distributed Electronic Warfare Applications and Localization Systems," with A. Molisch (PI, USC)

Cisco Systems (10/11-9/12), **PI**, "Flexible, Reconfigurable Capacity Output of High-Performance Optical Transceivers Enabling Cost-Efficient, Scalable Network Architectures," Univ. Research Program

Defense Security Cooperation Agency (DSCA) (2/1/2012-1/31/2013), **PI**, "Performance Enhancement of Optical Fiber Sensors Based on Nonlinearities and Multi-Dimensional Parameterization"

Gigoptix Corp. (11/10-10/11), **PI**, "100-Gbaud Modulation in Optical Communication Systems"

Defense Advanced Research Projects Agency (DARPA) (2/11-2/12), **PI**, "High-Speed Optical Processing of Sparse Aperture Image Data (50 Megapixels, 10-bit Depth) using Tunable Optical Tapped-Delay-Lines," MTO/STO Study

Google Faculty Research Awards Program (11/11-10/12), **PI**, "Cost-Effective, Ubiquitous Optical SNR Performance Monitoring to Enhance Stability and Reconfigurability in Advanced, High-Capacity Google Networks"

GRANTS: (CONTINUED)

Defense Advanced Research Projects Agency (DARPA) (6/12-1/14), **PI**, "Reconfigurable Networking Functions (Add/Drop, Data Exchange, Multicasting) in OAM-Based Systems," DSO Study

National Science Foundation (NSF) (3/2012-3/2015), **PI**, "Terabit-per-second Data Processing to Extract Features of Interest in Enormous Amount of Data"

Air Force Office of Scientific Research (AFOSR) (7/12-7/15), **PI**, "Tailoring of Dispersion and Nonlinearity of Slotted Waveguides and Ring Resonators to Achieve Stable, Efficient, Octave-Spanning Optical Frequency Combs," Basic Research Initiative (BRI) Program

Intel Labs University Research Office (URO) (12/12-12/15), **Co-PI**, "Higher, Denser, Wilder: Massively Broadband and Adaptive Wireless for 5th Generation Wireless Communications" (PI: A. Molisch, USC)

Google Faculty Research Awards Program (1/13-12/13), **PI**, "Reconfigurable, Ubiquitous Optical Signal-to-Noise-Ratio Monitoring to Enhance Stability and Upgradability in Google's Present and Future High-Capacity Networks"

National Science Foundation (NSF) (9/13-8/15), "Center for Integrated Access Networks (CIAN)," Engineering Research Center, **Thrust Leader** (PI - Nasser Peyghambarian, Univ. of Arizona)

National Science Foundation (NSF) (10/13-9/16), **Co-PI**, INSPIRE Program, "An Optical Turing Machine for Native Computing using High-Capacity Transmission Modulation Format Symbols" (PI: Joe Touch, USC ISI)

Nxgen Partners (5/14-8/15), **PI**, "Application of Orbital Angular Momentum to Communications"

Bandwidth10 (5/14-7/15), **PI**, USC-1347563, NSF, Option 1: Small-Business ERC Collaborative

Air Force Office of Scientific Research (AFOSR) (12/14-6/15), **Co-PI**, "Terabit Optical COMMunications System (TOCOMM)," STTR Program

Air Force Office of Scientific Research (AFOSR) (6/15-6/19), **PI**, "Fundamental Understanding of the Physics of Kerr Frequency Comb and Its Effects on the Applications of Coherent Communication, Signal Processing and Measurement"

Defense Security Cooperation Agency (DSCA) (11/15-1/16), **PI**, "Tunable Discrete Random Access Optical Buffer"

Defense Security Cooperation Agency (DSCA) (11/15-11/16), **PI**, "Generic Fabrication Methodology for VIS-IR Integrated Electrooptical Circuits"

Fujitsu (4/15-4/16), **PI**, "Optical Signal Processing Functions in an Optical Network"

National Institute of Standards and Technology (NIST) (2/16-1/17), **PI**, "Measurement, Technology, and Analysis of Overlapped Channels for the Optimal Use of Spectrum in Communication Systems"

NxGen Partners (12/15-8/16), **PI**, "Using OAM Beams for High-capacity RF E-band & Optical Fiber km Links"

Air Force Office of Scientific Research (AFOSR) (3/16-2/18), **Co-PI**, "Phase II, The Terabit Optical COMMunications (TOCOMM) System" (PI: Robert Bock, R-Dex)

GRANTS: (CONTINUED)

National Science Foundation (NSF) (6/15-5/18), **Co-PI**, “Fundamentals of Wireless Communication Systems using Orbital Angular Momenta” (PI: Andreas F. Molisch)

Office of Naval Research (ONR) (7/15-7/18), **Co-PI**, “High-Capacity, Free-Space Quantum Key Distribution based on Spatial and Polarization Encoding” (PI: Robert Boyd, Uuniversity of Rochester)

Office of Naval Research (ONR) (10/15-6/16), **Co-PI**, “STTR: Precision Optical Navigation Guidance (PRONG) System” (PI: D. Starodubov, FOMS, Inc.)

Huawei / Futurewei (2/16-2/18), **PI**, “Optical Signal Processing for All-Optical Networks”

Intel Labs (2/16-2/19), **PI**, “OAM-Based Wireless Systems”

Defense University Research Instrumentation Program (DURIP) (07/16-06/17), **PI**, “High Baud-Rate and High-Order QAM Optical Transmitter for Long-Range Terabit-per-Second Free-Space Optical Communications Using Orbital Angular Momentum”

National Science Foundation (NSF) (07/16-03/17), **Co-PI**, “STTR Phase I: TeraLink - Next Generation Free Space Optical Communications System”

Huawei / Futurewei (7/16-7/17), **PI**, “Perspectives on the Future of Optical Communications”

Vannevar Bush Faculty Fellowship (VBFF) (08/16-07/21), **PI**, “Multiple Structured Electromagnetic Waves Containing Orbital Angular Momentum for Novel Communications, Imaging, and Directed Energy”

Fujitsu (4/17-9/18), **PI**, “Insights for Future Optical Communication Systems”

LYTELOOP Technologies, (11/17), “Equipment donation (spatial light modulator)”

Air Force Office of Scientific Research (AFOSR) SBIR (01/18-03/19), **Co-PI**, "The Tunable and Reconfigurable Integrated Platform (TRIP) for OAM Generation, Multiplexing, Demultiplexing and Detection" (PI: Robert Bock, R-Dex)

Fujitsu (04/18-04/19), **PI**, “Optical Signal Processing”

Naval Air Systems Command (NAVAIR) SBIR (06/18-12/18), **Co-PI**, "Enhanced Robustness and Reliability for Free-Space Optical Communication Link Using Spatial Diversity (SD-Link)" (PI: Robert Bock, R-Dex)

Defense Advanced Research Projects Agency (DARPA) (7/18-6/22), **Co-PI**, " Giant Nonlinear Response of ENZ Metastructures" (PI: Robert Boyd, Uuniversity of Rochester)

Air Force Office of Scientific Research (AFOSR) SBIR (12/19-12/21), **Co-PI**, "Phase II: The Tunable and Reconfigurable Integrated Platform (TRIP) for OAM Generation, Multiplexing, Demultiplexing and Detection" (PI: Robert Bock, R-Dex)

Defense University Research Instrumentation Program (DURIP) (04/20-04/21), **PI**, “Signal Source Analyzer for Frequency Comb, Orbital Angular Momentum Applications, and Highly Nonlinear Materials”

USC ACTIVITIES:

Member, USC VSoE Space Council ('19-'20)
Member, Award Committee, Associates Award for Creativity in Research (several years within '13-'19)
Director, Communications Sciences Institute, Ming Hsieh Dept. of Electrical Eng. ('16-'17)
Faculty Advisor, IEEE, USC Student Chapter ('15-'18)
Faculty Advisor, OSA Student Chapter at USC ('14-'18)
Member, Graduate Curriculum Committee, Ming Hsieh Dept. of Electrical Engineering – Systems ('16-'17)
Chair, Provost's University-Wide Committee on Academic Review (UCAR) (2013-2015)
Co-Chair, Provost's University-Wide Committee on Academic Review (UCAR) (2012-2013)
Chair, Provost's University-Wide Ph.D. Fellowship Evaluation Task Force (2011-2012)
Chair, Provost's University-Wide Graduate School Committee, Fellowships, Prizes & Awards ('09-'11)
President, USC Chapter of Phi Kappa Phi All-University Honor Society ('11-'12)
Vice President, USC Chapter of Phi Kappa Phi All-University Honor Society ('10-'11)
Executive Board Member, USC Chapter of Phi Kappa Phi All-University Honor Society ('09-'12)
Member, Provost's Advisory Committee on Transformational Hiring in Sciences & Eng. ('11-'12)
Member, Vice-Provost's The Graduate School Faculty Advisory Council (2011-2012)
Faculty Advisory Committee, USC Viterbi School of Eng., New Frontiers of Science & Eng. Bldg. ('10)
Provost's Conflict of Interest in Research Committee ('07-'08, '08-'09, '09-'10)
Provost's Conflict of Interest in Research Task Force ('10-'11)
Member, Award Committee, Associates Award for Excellence in Teaching (several years within '04-'09)
Provost's Faculty Working Group for "Defining the New Diploma in Ph.D. Innovation" ('08-'09)
Provost's Graduate School Committee on Fellowships, Prizes, and Awards ('07-'08, '08-'09)
Member, Dean's Committee of the Unification of the Ming Hsieh EE Dept., USC Viterbi School of Eng. ('10)
Executive Committee, Ming Hsieh Dept. of Electrical Engineering - Systems ('07-'11 and '16-'17)
Co-Director, Communications Sciences Institute, Ming Hsieh Dept. of Electrical Eng. ('07-'11)
Academic Program Review Subcommittee, Ming Hsieh Dept. of EE Advisory Board Committee ('10)
Student Affairs Committee of the USC Board of Trustees, Faculty Member ('06-'07)
Organizer, Students' Practical Guide Seminar Series, Ming Hsieh Dept. of Electrical Eng. ('07-'09)
Co-Chair, Departmental Retreat Committee, Ming Hsieh Dept. of Electrical Eng. ('07)
Member, Awards Committee, Ming Hsieh Dept. of Electrical Eng. ('07-'08, '08-'09, '11-'12)
Member, Research Committee of the Engineering Faculty Council, USC Viterbi School of Eng. ('07)
USC Center for Excellence in Teaching (CET), Teaching Assistant Training Program ('06)
University-Wide Committee on Appointments, Promotions, & Tenure (UCAPT) ('03-'04, '04-'05, '08-'10)
Provost's University Financial Disclosures Review Committee ('03-'04, '04-'05, '05-'06, '06-'07)
Committee, University-Wide Associates Awards, Excellence in Teaching & Outstanding TA ('03-'05, '07-'10)
Faculty Advisor, Alpha Delta Sigma, USC Jewish Honor Campus Fraternity
Nominated and Accepted, Provost's Leadership Council ('97-'98)
USC Department of Electrical Engineering – Systems, Chair Search Committee ('02-'03)
Chair, Best Student Research Paper Award Committee, Dept. of Electrical Engineering ('02)
Director's Search Committee, USC's NSF Engineering Research Center in Multimedia ('01-'02)
USC School of Engineering Dean's Search Committee ('00-'01)
USC School of Engineering Research Committee ('99-'00)

USC ACTIVITIES: (CONTINUED)

Elected, USC Engineering Appointments, Promotions, & Tenure Committee ('94-'98)

Associate Director, USC Integrated Media Systems Center, Student Affairs ('96-'01)

University Committee on Patents and Technology ('94-'97)

Associate Director, USC Center for Photonic Technology ('94-present)

USC School of Engineering Restructuring Subcommittee ('96)

USC School of Engineering Systems Architecting Committee ('97)

USC School of Eng. Recruitment Enrollment Management Committee ('94-'96)

Faculty Advisor, Optical Society of America, USC Student Chapter ('95-present)

Board of Directors, LA Hillel City Board, USC Representative ('95-'97)

Faculty Advisory Board, USC Hillel Organization ('92-'99)

Seminar Series Coordinator (Communications Sciences Institute) ('92-'95)

Ph.D. Screening Exam Coordinator (Communications Sciences Institute) ('92-'97)

PUBLICATIONS

U.S. PATENTS:

1. Title: A Method of Localized Photochemical Etching of Multilayered Semiconductor Body (U.S. Pat. Ser. No. 5,081,002), Co-Inventors: M. N. Ruberto, D. V. Podlesnik, and R. M. Osgood, Jr. (Jan. 14, 1992)
2. Title: One-To-Many Simultaneous Optical Two-Dimensional Plane Interconnections using Multiple Wavelength, Vertical Cavity, Surface-Emitting Lasers and Wavelength-Dependent Detector Arrays (U.S. Pat. Ser. No. 5,546,209), Co-Inventors: C.J. Chang-Hasnain and J.E. Leight. (Aug. 13, 1996)
3. Title: Tunable Dispersion Compensator Based on a Nonlinearly-Chirped Fiber Bragg Grating (U.S. Pat. Ser. No. 5,982,963), Co-Inventors: J.-X. Cai, J. Feinberg, K.-M. Feng, V. Grubsky, and D.S. Starodubov. (Nov. 9, 1999)
4. Title: Integrated Bi-directional Gradient Refractive Index Multiplexer (U.S. Pat. Ser. No. 6,011,885), Co-Inventors: J.R. Dempewolf, R.H. Dueck, B.V. Hunter, and R.K. Wade. (Jan. 4, 2000)
5. Title: Dispersion Compensation by using Tunable Nonlinearly Chirped Gratings (U.S. Pat. Ser. No. 6,330,383), Co-Inventors: J.-X. Cai, K.-M. Feng, R. Khosravani, S. Lee, and J. Peng. (Dec. 11, 2001)
6. Title: Optical Compensation for Dispersion-Induced Power Fading in Optical Transmission of Double-Sideband Signals (U.S. Pat. Ser. No. 6,388,785), Co-Inventors: O.H. Adamczyk, S.A. Havstad, A.B. Sahin, and Y. Xie. (May 14, 2002)
7. Title: Tunable Compensation for Polarization-Mode Dispersion using a Birefringent Nonlinearly-Chirped Grating in a Dual-Pass Configuration (U.S. Pat. Ser. No. 6,400,869), Co-Inventors: S. Lee, Z. Pan, and Y. Xie. (June 4, 2002)
8. Title: Dynamic Power Equalization of Many Wavelength-Division-Multiplexed Channels in a Fiber Optic System using Acousto-Optic Technology (U.S. Pat. Ser. No. 6,341,021), Co-Inventors: J.-X. Cai, K.-M. Feng, S.H. Huang, D.A. Smith, and X.Y. Zou. (Jan. 22, 2002) [Note: Name misspelled as "Wilner".]
9. Title: Tunable Optical Dispersion-Slope Compensation Based on a Nonlinearly-Chirped Bragg Grating (U.S. Pat. Ser. No. 6,453,093), Co-Inventors: S. Lee, Z. Pan, and Y. Xie. (Sept. 17, 2002)
10. Title: Tuning of Optical Dispersion by using a Tunable Fiber Bragg Grating (U.S. Pat. Ser. No. 6,453,095), Co-Inventors: J.-X. Cai, J. Feinberg, K.-M. Feng, V. Grubsky, and D.S. Starodubov. (Sept. 17, 2002)
11. Title: Optical Detection of a Fiber Span with High Polarization-Mode Dispersion in a Fiber System (U.S. Pat. Ser. No. 6,459,479), Co-Inventors: S. Lee. (Oct. 1, 2002)
12. Title: Technique for Detecting the Status of WDM Optical Signals (U.S. Pat. Ser. No. 6,480,648), Co-Inventors: J.R. Dempewolf, W.W. Peck, I. Turner, and R.K. Wade. (Nov. 12, 2002)
13. Title: Polarization-Mode Dispersion Emulator (U.S. Pat. Ser. No. 6,542,650), Co-Inventors: P. Ebrahimi, E. Ibragimov, R. Khosravani, I.T. Lima, Jr., and C.R. Menyuk. (April 1, 2003)
14. Title: Compensation and Control of Both First-Order and Higher-Order Polarization-Mode Dispersion (U.S. Pat. Ser. No. 6,654,103), Co-Inventors: S. Lee, L.-S. Yan, and Q. Yu. (Nov. 25, 2003)

15. Title: Compensation for Polarization-Mode Dispersion in Multiple Wavelength-Division Multiplexed Channels Without Separate Compensation for Each Individual Channel (U.S. Pat. Ser. No. 6,603,890), Co-Inventors: P. Ebrahimi, S.A. Havstad, R. Khosravani, and Y.W. Song. (Aug. 5, 2003)
16. Title: WDM Fiber Amplifiers using Sampled Bragg Gratings (U.S. Pat. Ser. No. 6,621,627), Co-Inventors: Z. Pan and Y. Xie. (Sept. 16, 2003)
17. Title: Polarization-Division Multiplexing Based on Power Encoding of Two Different Polarization Channels (U.S. Pat. Ser. No. 6,714,742), Co-Inventors: M.C. Cardakli and M.I. Hayee. (March 30, 2004)
18. Title: Intra-Bit Polarization Diversity Modulation (U.S. Pat. Ser. No. 6,646,774), Co-Inventors: T. Luo, Z. Pan, A.B. Sahin, Y. Wang, C.-Y. Yu, and Q. Yu. (Nov. 11, 2003)
19. Title: Reconfigurable Optical Recognition of Bit Information in a Digital Data Stream with Different Bit Rates (U.S. Pat. Ser. No. 6,751,416), Co-Inventors: M.C. Cardakli, D. Gurkan, and S. Lee. (June 15, 2004)
20. Title: Devices and Applications Based on Tunable Waveguiding Bragg Gratings with Nonlinear Group Delays (U.S. Pat. Ser. No. 6,915,040), Co-Inventors: Y.W. Song and S.M.R. Motaghian Nezam. (July 5, 2005)
21. Title: Optical Dispersion Monitoring Based on Vestigial Sideband Optical Filtering (U.S. Pat. Ser. No. 7,035,538), Co-Inventors: Z. Pan, L.-S. Yan, and Q. Yu. (April 25, 2006)
22. Title: Monitoring and In-Line Compensation of Polarization Dependent Loss for Lightwave Systems (U.S. Pat. Ser. No. 7,206,517), Co-Inventors: L.-S. Yan and Q. Yu. (April 17, 2007)
23. Title: Optically Boosted Router (U.S. Pat. Ser. No. 7,369,766), Co-Inventors: J. Bannister, J. McGeehan, P. Kamath, A. Patel, and J.D. Touch. (May 6, 2008)
24. Title: Code Cycle Modulation: Concept and Implementation (U.S. Pat. Ser. No. 7,616,618), Co-Inventors: P.V. Kumar, R. Omrani, P. Saghari, and J.D. Touch. (Nov. 10, 2009)
25. Title: Waveguide-Based Dispersion Device (U.S. Pat. Ser. No. 8,483,529), Co-Inventors: Y. Yue and L. Zhang. (July 9, 2013)
26. Title: Sweep-Free Stimulated Brillouin Scattering-Based Fiber Optical Sensing (U.S. Pat. Ser. No. 8,800,375), Co-Inventors: M. Tur and A. Voskoboynik. (Aug. 12, 2014)
27. Title: All-optical Tunable Tapped-Delay-Lines using Wavelength Conversion and Chromatic Dispersion Based Delays (U.S. Pat. Ser. No. 8,976,445), Co-inventors: Salman Khaleghi, Mohammad Reza Chitgarha, and Omer Yilmaz. (March 10, 2015)
28. Title: On-Chip Two-Octave Supercontinuum Generation Enabled by Advanced Chromatic Dispersion Tailoring in Slotted Waveguides (U.S. Pat. Ser. No. 9,110,219), Co-inventors: Yan Yan, Yang Yue, and Lin Zhang. (Aug. 18, 2015)
29. Title: Mirrorless-Oscillation in a Waveguide using Non-Degenerate Four-Wave Mixing (U.S. Pat. Ser. No. 9,086,609), Co-inventors: Yan Yan and Lin Zhang (July 21, 2015)
30. Title: Reconfigurable Optical Transmitter (U.S. Pat. Ser. No. 9,166,721), Co-inventors: Salman Khaleghi and Mohammad Reza Chitgarha. (October 20, 2015)
31. Title: Automatically Locked Homodyne Detection (U.S. Pat. Ser. No. 9,625,320), Co-inventors: Mohammad Reza Chitgarha, Salman Khaleghi, Amirhossein Mohajerin-ariaei and Morteza Ziyadi (Apr. 18, 2017)

32. Title: Systems and Techniques for Orbital Angular Momentum Based Reconfigurable Switching (U.S. Pat. Ser. No. 9,768,909), Co-inventors: Nisar Ahmed, Hao Huang, Yongxiong Ren, Moshe Tur, Moshe J. Willner, Yan Yan and Yang Yue (Sept. 19, 2017)
33. Title: Adaptive Optics Based Simultaneous Turbulence Compensation of Multiple Orbital Angular Momentum Beams (U.S. Pat. Ser. No. 9,780,872), Co-inventors: Hao Huang, Yongxiong Ren and Guodong Xie (Oct. 3, 2017)
34. Title: Phase-Sensitive Regeneration without a Phase-Locked Loop using Brillouin Amplification (U.S. Pat. Ser. No. 10,270,536), Co-inventors: Ahmed Almaman, Yinwen Cao and Morteza Ziyadi (Apr. 23, 2019)
35. Title: Systems and Techniques for Communication using Multiple-Input-Multiple-Output Processing of Orbital Angular Momentum Modes (U.S. Pat. Ser. No. 10,291,300), Co-inventors: Yongxiong Ren, Long Li, Guodong Xie, Yinwen Cao, Zhe Wang, Cong Liu, Asher J. Willner (May 14, 2019)
36. Title: Tunable Optical Channel Slicing and Stitching to Enable Dynamic Bandwidth Allocation (U.S. Pat. Ser. No. 10,277,326), Co-inventor: Yinwen Cao (April 30, 2019)
37. Title: Systems and Techniques for Communication Using Combined Orbital Angular Momentum and Multiple-Input-Multiple-Output Processing (U.S. Pat. Ser. No. 10,411,811), Co-inventors: Yongxiong Ren, Long Li, Guodong Xie; Yinwen Cao, Zhe Wang, Cong Liu, Asher J. Willner (Sept. 10, 2019)
38. Title: Spatial Light Structuring using a Combination of Multiple Orthogonal Orbital Angular Momentum Beams with Complex Coefficients (U.S. Pat. App. No. 15/990608, to be issued), Co-inventors: Long Li, Cong Liu, Yongxiong Ren, Guodong Xie, Zhe Zhao (Nov. 29, 2018)
39. Title: Data in Motion Storage System and Method (International Patent Publication No: WO/2017/165429), Co-inventors: Daniel M. Damaghi, Ohad Harlev, Ariel Litvin, Naftaly Barak, Paul Francis Mcmanamon, Asher McGuffin (Mar. 31, 2019)

BOOKS:

1. **Optical Fiber Telecommunications VII**, Alan E. Willner, editor, Elsevier Publishers, Academic Press, San Diego, Oct. 2019, ISBN: 978-0-12-816502-7.
2. **Novel Insights into Orbital Angular Momentum Beams: From Fundamentals, Devices to Applications**, Yang Yue, Hao Huang, Yongxiong Ren, Zhongqi Pan, and Alan E. Willner, co-editors, MDPI AG, Basel, Switzerland, Sept. 2019, ISBN: 978-3-03921-223-1.
3. **Optical Fiber Telecommunications VI, Volumes A and B**, Ivan P. Kaminow, Tingye Li, and Alan E. Willner, co-editors, Elsevier Publishers, Academic Press, San Diego, May 2013, ISBN: 978-0-12-396958-3 and 978-0-12-396960-6.
4. **Optical Fiber Telecommunications ebook Collection: Ultimate CD**, Stewart E Miller, Ivan P. Kaminow, Thomas Koch, Tingye Li, and Alan E. Willner, co-editors, Elsevier Publishers, Academic Press, San Diego, Sept. 2008, ISBN: 978-0-12-374643-4 and 978-0-12-374643-6.
5. **Optical Fiber Telecommunications V, Volumes A and B**, Ivan P. Kaminow, Tingye Li, and Alan E. Willner, co-editors, Elsevier Publishers, Academic Press, San Diego, Feb. 2008, ISBN: 978-0-12-374171-4 and 978-0-12-374172-4.
6. **Optical Fiber Communication Systems**, L.G. Kazovsky, S. Benedetto, and A. E. Willner, co-authors, Artech House Publishers, Boston, Oct. 1996, ISBN: 0-89006-756-2.

7. **System Technologies, Trends in Optics and Photonics**, vol. 12, Alan E. Willner and Curtis R. Menyuk, co-editors, Optical Society of America, Washington, D.C., 1997, ISBN: 1-55752-484.
8. **Optical Amplifiers and Their Enabling Technologies, Trends in Optics and Photonics**, vol. 16, and M. N. Zervas, Alan E. Willner, and S. Sasaki, co-editors, Optical Society of America, Washington, D.C., 1998, ISBN: 1-55752-505-6.
9. **Emerging Components and Technologies for All Optical Networks**, Proceedings of SPIE - the International Society for Optical Engineering, vol. 2613, Emil S. Koteles and Alan E. Willner, co-editors, SPIE, Bellingham, WA, 1995, ISBN-13: 978-0819419774.
10. **Optical Fiber Communication**, Proceedings of SPIE - the International Society for Optical Engineering, Winston I. Way, Franklin K. Tong, and Alan E. Willner, co-editors, SPIE, Bellingham, WA, 1998, ISBN-13: 978-0819428745.

INVITED BOOK CHAPTERS:

1. Alan. E. Willner, Yan Yan, Yongxiong Ren, Nisar Ahmed and Guodong Xie, "Orbital Angular Momentum-based Wireless Communications: Designs and Implementations," **Signal Processing for 5G: Algorithms and Implementations, First Edition**, Chapter 13, Fa-Long Luo and Charlie Zhang, editors, John Wiley & Sons, Ltd., Chichester, October 2016, ISBN: 978-1-119-11646-2.
2. Alan. E. Willner, "Optical Communications: The Next 100 Years," **OSA Century of Optics**, Section "The Future", Paul Kelley, Govind Agrawal, Mike Bass, Jeff Hecht and Carlos Stroud, editors, The Optical Society (OSA), Washington, 2015, ISBN: 978-1-943580-04-0.
3. Jian Wang and Alan E. Willner, "High-Base Optical Signal Processing," **Applications of Digital Signal Processing through Practical Approach**, Chapter 2, Sudhakar Radhakrishnan, editor, InTech Publishers, San Diego, October 2015, ISBN: 978-953-51-2190-9.
4. Antonella Bogoni and Alan Willner, "Photonic Signal Processing for Login and Computation," **All-Optical Signal Processing: Data Communication and Storage Applications**, Chapter 6, S. Wabnitz and B. Eggleton, editors, Springer Series, vol. 194, April 2015, ISBN: 978-3-319-14991-2.
5. Jian Wang, Miles J. Padgett, Siddharth Ramachandran, Martin P.J. Lavery, Hao Huang, Yang Yue, Nenad Bozinovic, Steven E. Golowich, and Alan E. Willner, "Multimode Communications using Orbital Angular Momentum," **Optical Fiber Telecommunications VIB**, Chapter 12, Ivan P. Kaminow, Tingye Li, and Alan E. Willner, editors, Elsevier Publishers, Academic Press, San Diego, March 2013, ISBN: 978-0-12-396960-6.
6. Jian Wang and Alan E. Willner, "Optical Signal Processing: Data Exchange," **Design and Architectures for Digital Signal Processing**, Chapter 3, Gustavo Ruiz and Juan A. Michell, editors, InTech Publishers, January 2013, ISBN 978-953-51-0874-0.
7. Avi Zadok, Daniel Grodensky, Daniel Kravitz, Yair Peled, Moshe Tur, Xiaoxia Wu and Alan E. Willner, "Ultra-Wideband Waveform Generation using Nonlinear Propagation in Optical Fibers," **Invited Chapter**, in **Ultra Wideband Communications: Novel Trends - Antennas and Propagation**, Mohammad Matin, editor, InTech Publishers, August 2011, ISBN 978-953-307-452-8.
8. A.E. Willner, Jeng-Yuan Yang, and Xiaoxia Wu, "Optical Performance Monitoring: Perspectives and Challenges," **Optical Performance Monitoring Techniques for Next Generation Photonic Networks**, Calvin Chan, editor, Elsevier Publishers, Academic Press, San Diego, 2010.

9. L. Zhang and A. E. Willner, "Micro-Resonators for Communication and Signal Processing Applications," **Photonic Microresonator Research and Applications**, Chapter 19, I. Chremmos, O. Schwelb and N. Uzunoglu, editors, Springer Publishing House, New York, ISBN: 978-1-4419-1743-0, 2010.
10. Alan E. Willner, Changyuan Yu, Zhongqi Pan, and Yong Xie, "WDM Fiber Optic Communication Networks," **Handbook of Optics, Volume V**, Chapter 21, G. Li and C. DeCusatis, editors, McGraw-Hill, Inc., New York, New York, 2009.
11. A.E. Willner, Z. Pan, and C. Yu, "Optical Performance Monitoring," **Optical Fiber Telecommunications VB**, Chapter 7, Ivan P. Kaminow, Tingye Li, and Alan E. Willner, editors, Elsevier Publishers, Academic Press, San Diego, Feb. 2008, ISBN: 978-0-12-374172-4.
12. I.P. Kaminow, Tingye Li, and A.E. Willner, "Overview Chapter," **Optical Fiber Telecommunications V, Volumes A and B**, Chapter 1, Ivan P. Kaminow, Tingye Li, and Alan E. Willner, editors, Elsevier Publishers, Academic Press, San Diego, 2008, ISBN: 978-0-12-374171-4 and 978-0-12-374172-4.
13. A.E. Willner, B. Zhang, and L. Zhang, "Reconfigurable Signal Processing using Slow-Light-based Tunable Optical Delay Lines," **Slow Light: Science and Applications**, Chapter 16, Jacob B. Khurgin and Rodney S. Tucker, editors, Optical Science and Engineering Series, CRC Press, Taylor and Francis Publishers, 2008, ISBN: 978-1420061512.
14. A.E. Willner and Z. Pan, "Optical Characterization, Diagnosis, and Performance Monitoring for PONs," **Passive Optical Network Technologies**, Cedric Lam, editor, Chapter 7, pp. 267-300, Academic Press, Nov. 2007, ISBN: 0-12-373853-9.
15. A.E. Willner and Z. Pan, "Optical Communications," **CRC Handbook of Photonics, 2nd Edition**, M.C. Gupta, editor, CRC Press, Florida, 2006, ISBN: 0-8493-3095-7.
16. A.E. Willner and M.C. Hauer, "PMD Emulation," **Polarization Mode Dispersion**, Chapter 16, Andrea Galtarossa and Curtis Menyuk, editors, Springer-Verlag Publishers, Berlin, 2005, ISBN: 0-387-23193-5.
17. A.E. Willner and R. Khosravani, "Photonic Networks," **Electrical Engineering Handbook**, 3rd Ed., CRC Press, R.C. Dorf, editor, Chapter 3.3, Florida, 2005, ISBN: 084932274X.
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 142. A.E. Willner, "All-Optical Signal Processing using Optical Nonlinearities," **Invited Presentation, 5th International Symposium on Ultrafast Photonic Technologies**, at HHI in Berlin, Sept. 2011.
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172. A.E. Willner, "Achieving Tunable Delays using Wavelength Conversion," **Invited Paper, Society of Photo-Instrumentation Engineers (SPIE) Photonics West, Conference on Advances in Slow and Fast Light II (OPTO OE116)**, paper 7226-11, Jan. 2009, San Jose, CA (SPIE, Bellingham, Wash., 2009).
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194. A.E. Willner, "Opportunities & Challenges in Optical Networking," **Plenary Presentation, 9th International Conference on Transparent Optical Networks (ICTON)**, Rome, Italy, July 2007.
195. A.E. Willner, "Robust and Reconfigurable Optical Communication Systems," **Plenary Presentation, Workshop on Optical Communications, Advanced Communications Center**, Tel Aviv University, Dec. 2007.
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201. Alan E. Willner, "Physical-Layer Challenges in Stable, High-Capacity Optical Communication Networks," **Invited Presentation**, Dept. of Applied Physics Seminar Series, Hebrew University, June 6, 2007.
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205. A.E. Willner, "Leverage the Show Floor to Your Advantage," **Invited Presentation**, Student Activities Workshop, **Conference on Lasers and Electro-Optics (CLEO)**, Baltimore, MD, May 2007 (Optical Society of America, Wash., D.C., 2007).
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