S. R. J. BRUECK

Professional Employment History:

University of New Mexico	Director, Center for High Technology Materials	1986 - present
University of New Mexico	Distinguished Professor of Electrical and Computer Engr. Distinguished Professor of Physics and Astronomy	2006 - present
University of New Mexico	Professor of Electrical and Computer Engineering, Professor of Physics and Astronomy	1985 - 2006
M.I.T. Lincoln Laboratory	Research Staff Member, Quantum Electronics Group	1973 - 1985
M.I.T. Lincoln Laboratory	Postdoctoral Appointment, Quantum Electronics Group	1971 - 1973
M.I.T. Lincoln Laboratory	Research Assistant, Applied Physics Group	1967 - 1971
Bell Telephone Laboratories	Member Technical Staff	1967 summer
M.I.T.	Research Assistant, Research Laboratory of Electronics	1965 - 1967

Boards of Directors:

LightPath, Inc.	2001 – present
Science and Technology Corporation @ UNM	2001 – 2005

Education:

Doctor of Philosophy in Electrical Engineering
Massachusetts Institute of Technology 1971
Thesis: *Spontaneous and Stimulated Spin-Flip Raman Scattering in InSb*

Master of Science in Electrical Engineering
Massachusetts Institute of Technology 1967
Thesis: *Microwave Acoustic Instabilities in Semiconductors in a Magnetic Field*

Bachelor of Science in Electrical Engineering
Columbia University 1965

Research Accomplishments:

- First demonstration of CW stimulated Raman scattering (spin-flip scattering in InSb)
- Physics of spontaneous and stimulated spin-flip Raman scattering.
- Vibrational energy transfer in cryogenic liquids.
- Discovery of radiatively limited lifetime of 1 sec for vibrational mode of liquid N_2; $10^{12}\times$ the vibrational dephasing time.
- Nonlinear optics of cryogenic liquids (third harmonic generation, two-photon linewidths, Kerr switching).
- Importance of vibration-rotation coupling in determining the two-photon Q-branch (Raman) lineshape in liquids.
- Raman scattering studies of stress in silicon-on-insulator materials.
- Development of surface-acoustic wave spectroscopy as an ultrasensitive technique for the measurement of submonolayer absorbate coverages.
- Record sensitivity for absorbance measurements of $\alpha L \sim 10^{-9}$.
- Reactive-ion etch induced fluorescence for the depth profiling of impurities (e. g. Na) in SiO_2
- Laser-induced fluorescence studies of radical species in plasma-etching of semiconductor materials
- Stimulated surface-plasma wave scattering leading to surface ripples in laser-material interactions.
- Enhanced coupling of light to nanostructures on the scale of the optical wavelength.
- Resonant-periodic-gain surface-emitting lasers.
- High-speed metal-semiconductor-metal (Ni-Si-Ni) photodetectors
- Ultra-high resolution MSM position sensors (< 4 nm precison).

- Discovery of large $\chi^{(2)}$ nonlinearity (~ 1 pm/V) in silica glass.
- Electrooptic effect in bulk, thin film and fiber geometries.
- Multiple-exposure interferometric lithography for extreme sub-micrometer lithography.
- Fabrication technology for large area Si quantum walls and wires; studies of optical properties - Raman scattering and photoluminescence.
- Moiré and speckle techniques for noncontact temperature measurement with 1°C resolution.
- Sub-feature speckle interferometry, a new technique for non-contact, sub-λ position measurement.
- Imaging interferometric lithography marrying optical and interferometric approaches to print arbitrary structures to ~ 70 nm scales.
- Imaging interferometric lithography – extending optical lithography to fundamental linear systems limits.
- Nonlinear interferometric lithography – use of processing nonlinearities to exceed the linear systems limits of optics.
- Nanoheteroepitaxy – growth of heterostructure materials (GaAs and GaN on Si) using nanoscale seeds.
- Nanoscale MBE growth – first demonstration of selective growth in MBE; growth of single InAs quantum dots; combination of lithographic and self-assembly to grow 1D rows of quantum dots.
- Analytic calculation of dipole radiation in confined structures.
- First infrared magnetic resonance structures.
- Integrated nanofluidic chip: mm's to nm's and demonstrations of dye and biomolecular separations.
- First experimental realization of near-IR negative index metamaterials.
- > Tb/s metamaterial modulators.
- Imaging interferometric microscopy to extend optical microscopy to the nanoscale.
- Broadly tunable, optically pumped infrared lasers based on chirped DFB gratings.

Current Research (May-13):

Interferometric lithography and microscopy is increasing in importance to both Si integrated circuit manufacturing and display research communities. Over the longer term, we are exploring the application of interferometry to the high-resolution that will be necessary for future generations of integrated circuits, by developing techniques to introduce the necessary pattern flexibility. We have demonstrated imaging-interferometric lithography with the potential to extend the resolution of optics to $\lambda/3n$ (45 nm at a 193-nm exposure wavelength). Nonlinear processes allow extension of these limits by integer divisors, e.g. to 22 nm for a doubling process and 12 nm for a tripling process. Other, fundamental-research-oriented applications of interferometric lithography include: studies of optical emission from Si nanostructures (< 10 nm feature sizes); nanoheteroepitaxy - the use of interferometrically defined nanostructures as a substrate for epitaxial growth that alleviates many of the limitations imposed on growth of heterostructure materials by differing lattice constants and thermal expansion coefficients; studies of electromagnetic interactions with materials structured at the wavelength scale; and new electronic devices such as transverse resonant tunneling diodes enabled by this new lithographic capability. Recently, we have extended these ideas to microscopy, where they are essentially a synthetic aperture approach, demonstrating a resolution of < 150 nm ($\lambda/4.2$) with a 633 nm source and a modest 0.4 NA objective. This is extensible to ~ $\lambda/15$, putting optical microscopy well into the nanoscale regime.

Nanoscale epitaxial growth is a new regime in expitaxial growth wherein the growth seed structures are fabricated using interferometric lithography (or other large-area nanoscale lithography). This allows the observation of many new crystal growth phenomena. Previous work on patterned growth has been restricted to much large scales; the important physical scales are of the order of surface diffusion lengths which are typically submicrometer, and are uniquely accessible by the lithographic techniques we have been developing. Important directions include nanoheteroepitaxy for the growth of materials with signifi-

cant lattice and thermal expansion mismatches and nanoscale MBE growth for investigation of the interplay of patterning and self-assembly, particularly for novel structures such as quantum dots.

Nanophotonics is another emerging area of great potential importance. Our group has been a leader in developing large-area nanoscale patterning for these applications. Important firsts include: first mid-IR negative permeability material; first near-IR negative-index material; first demonstration of enhanced transmission through metallic coaxial array structures in the MWIR and NIR. Recently, we have demonstrated a high speed (< 600 fs) all-optical modulator based on a fishnet metamaterial with a path length on only ~ 100 nm.

Administrative Experience:

Technical leadership and administrative responsibilities have been major aspects of my position as director of the Center for High Technology Materials. CHTM was initiated by the state of New Mexico with goals of establishing a major research center, encouraging interactions with federal laboratories and industry, and contributing to the economic development of New Mexico. During my tenure as director, CHTM has developed to a well-established, internationally recognized center for photonics and nanoelectronics.

Theses Supervised:

M. Y. A. Raja	*Wavelength-Resonant Surface Emitting Semiconductor Laser*	PhD	Physics	1988
Saleem H. Zaidi	*An Investigation of Holographic Grating Fabrication and Optical Coupling to Surface Plasma Waves*	PhD	Physics	1989
Schubert Soares	*High-Speed Ultraviolet Photomixers*	PhD	ECE	1989
Billy Wayne Mullins	*Heterodyne Characterization of High-Speed Photomixers for the Ultraviolet*	PhD	Physics	1989
Yue-Chue Fong	*Confocal Photoluminescence - Theory and Applications*	PhD	ECE	1993
Ashwani Sharma	*Extended-Wavelength Si MSM Photodetectors*	MS	ECE	1994
David Burckel	*Sub-Feature Speckle Interferometry*	MS	ECE	1995
Congzhong Huang	*Noncontact, Optical Diffraction Measurement of Semiconductor Temperature*	MS	ECE	1995
Richard A. Myers	*Large Second-Order Nonlinearity in Amorphous SiO_2 Using Temperature/Electric-Field Poling*	PhD	Physics	1995
An-Shyang Chu	*Si Quantum Walls: Fabrication and Optical Characterization*	PhD	Physics	1996
John V. Sandusky	*Microcavity Effects in an External Cavity Surface-Emitting Laser*	PhD	Physics	1997
Kristen A. M. Scott	*Silicon Metal-Semiconductor-Metal Photodetectors: Ion-Implanted High-Speed Near-Infrared Photodiodes and Position-Sensitive Photodetectors*	PhD	Physics	1997
Xiancun Tony Long	*Physics and Device Applications of Linear Electrooptic Effect in Poled Amorphous Silica-Based Materials*	PhD	Physics	1998
Xiaolan Chen	*A Study of Interferometric Lithography: Approaching the Linear Systems Limit of Optics*	PhD	ECE	1998
Thomas G. Alley	*The Formation of the Second-Order Nonlinearity in Poled Fused Silica*	PhD	Physics	1998
Jonathan Stohs	*Epitaxial Structure Dependence of Gain, Refractive Index,*	PhD	Physics	2000

	and Linewidth Enhancement Factor in GaAs and InGaAs Broad-Area Quantum Well Lasers			
Yanmin Wu	*Labview Programming for Lithographic Applications*	MS	ECE	2001
Michael J. O'Brien II	*Advances in Optics-Based Chemical and Biosensors with Array Applications*	PhD	Opt. Sci. Physics	2002
Tengiz Svimonishvili	*Dual Closed-Loop Optoelectronic Auto-Oscillatory Detection Circuit for Monitoring Fluoresence-Lifetime-Based Chemical/Biological Sensors and Sensor Arrays*	MS	ECE	2002
Seung Chang Lee	*Nanoscale Exitaxial Growth by Molecular Beam Epitaxy and Its Applications*	PhD	ECE	2002
Alex Raub	*Deep-UV Immersion Interferometric Lithography*	MS	ECE	2002
Babar Minhas	*Modeling of Two-Dimensional Resonant Structures*	PhD	ECE	2002
Christian Schwarz	*Imaging Interferometric Lithography and Microscopy*	PhD	Physics	2003
Ashwani Sharma	*Effects of Dimensional Nanoscaling on the Optical and Electronic Properties of Silicon Films-Walls-Wires*	PhD	ECE	2004
David Burckel	*Generalized Transverse Bragg Waveguides*	PhD	ECE	2004
Wenjun Fan	*Linear and Nonlinear Infrared Optical Properties of Subwavelength Coaxial Metallic Arrays*	PhD	ECE	2005
Shuang Zhang	*Infrared Magnetic and Negative Index Metamaterials*	PhD	ECE	2005
Jing Luo	*Second-Order Nonlinearity of Thermally-Poled Lead-Silicate Glass Waveguides*	PhD	ECE	2006
Yuliya Kuznetsova	*Imaging Interferometric Microscopy – Resolution to the Limit of Frequency Space*	PhD	Phyics	2007
Liang Xue	*Widely Tunable Infrared Lasers*	PhD	ECE	2008
Jingyu Zhang	*Metallic Photonic Crystals: Transmission Resonances and Second Harmonic Generation*	PhD	ECE	2009
Svyatoslav Smolev	*Progress in Metamaterials: Magnetic Hybridization of Electric Dipole Resonance and Inhomogeneous Structures for Thin-Film Lenses*	PhD	ECE	2010
Zahyun Ku	*All-Optical Metamaterial Modulators – Fabrication, Simulation and Characterization*	PhD	ECE	2010
Alex Raub	*Large-Area 3D Photonic Crystals with Embedded Waveguides*	PhD	ECE	2010

Current Graduate Students

Xiang He	ECE	PhD	ECE
Alexander Neumann	Physics	PhD	Physics
Anibil Chowdhuri	Physics	PhD	Physics
Ruichao Zhu	ECE	PhD	ECE
Chingyi Li	ECE	PhD	ECE

Grants and Contracts:

Principal investigator on numerous grants and contracts with federal agencies while at MIT Lincoln Laboratory.

Since joining the University of New Mexico in August, 1985 grants and contracts have included:

Project Title	Sponsor	Award Total	Period
Equipment grant to purchase a cw mode-locked YAG/dye laser system	NSF	$65,700	1986
High Power Semiconductor Diode Lasers	Spectra Diode Lab	$99,792	1986-1987
Optoelectronics Research Center	AFOSR	$22,499,256	1986-2011
Program to Develop High Performance 10-GHz Ultra-violet Photomixers	MIT Lincoln Lab	$461,722	1986
High-Speed UV Detector Development	MIT Lincoln Lab	$31,575	1987
Laser Semiconductor Interactions	AFOSR	$1,085,540	1986-1991
Optoelectric Device and Materials Research	NSF	$50,000	1987
Description and Specifications for Program to De-velop High-Performance 10 GHz Ultraviolet Photomixers	NRL	$51,398	1988
Micro-Raman Measurements of Diode Lasers	IBM	$48,953	1988
SEMATECH Center of Excellence for On-Line Analysis and Metrology	SEMATECH/SRC	$2,314,937	1988-1992
Journal of Quantum Electronics	IEEE/LEOS	$147,055	1989-1994
JQE Editors Office	JQE	$26,468	1989
Undergraduate Faculty Enhancement in Semicon-ductor Optoelectronics	NSF	$161,966	1988-1989
Optoelectronics Materials Center	DARPA	$12,323,656	1990-1996
Alliance for Phonic Technology	SNL	$19,900	1991
Metrology and On-line analysis for semiconductor manufacturing	SRC/SEMATECH	$2,036,405	1991-1994
SRC Travel Grant	SRC/SEMATECH	$8,321	1991-1992
APT Funding for FY 92	LANL	$221,302	1992-1994
Large Second Order Nonlinearity in Fused Silica	Draper Laboratories	$121,308	1992-1994
Diagnostic for In-Situ Temperature Measurement During Epitaxial Growth	Hughes Research Laboratories	$110,000	1993-1995
Integrated Fused Silica Modulators	Draper Laboratories	$124,536	1993-1995
Stage for Soft X-Ray Projection Lithography	SNL	$150,000	1993-1994
Development for the Generation of Microstructures using Multiple-exposure Interferometric Lithogra-phy	SRC/SEMATECH	$10,000	1994
IPA - various	AFOSR	$1,867,970	1994-2009
Measurement of the Linewidth Enhancement Factor at High Excitation Levels	AFOSR	$118,306	1994
SRC Senior Student Support Grant	SRC/SEMATECH	$67,500	1994

Interferometric Lithography Development	SNL	$159,744	1996-1997
Interferometric Lithography for Nanoscale Fabrication	DARPA	$1,065,256	1996-2000
A Feasibility Study of UV Polarizers	Moxtek	$15,000	1997
Equipment Support for Interferometric Mix & Match Lithography	SEMATECH	$488,949	1997
Interferometric Lithography for 0.18 μm Features	Novellus	$5,000	1997
Linewidth Enhancement Factor for Semiconductor Diode Lasers	AFOSR	$135,135	1997-2000
Manufactuable IR Photonic Crystals Based on Interferometric Lithography	ARO	$515,246	1997-1999
Method of Fabricating A Dynamic Random Access Memory with Textured, Area Enhancing Structures Using	Texas Instruments	$48,750	1997
Random and Uniform Reactive Ion Etching Texturing of Si	SNL	$74,998	1997
SRI Task Order Contract	SRI International	$156,450	1997-1998
APT Support from AFRL	NMIMT	$32,400	1998-2000
Development of 1.06 μm Fiber-Based Switch	Hughes Danbury Optical Systems	$64,473	1998
Manufacturable, Multi-Dimensional High Capacity Optoelectronic Interconnects	DARPA	$4,974,407	1998-2003
Deep Subwavelength Optical Nanolithography (MURI)	ARO	$5,391,598	1999-2004
Hydrogen Transport in Oxides	SNL	$94,419	1999-2000
Investigation of Large-Period Gratings by Interferometric Lithography	Cymer	$57,190	1999-2000
Modeling for Imaging Interferometric Lithography	SEMATECH	$61,308	1999
Nanowire Gate-All-Around Mosfet: Design, Fabrication and Characterization	University Space Research Association	$20,000	1999
Ultra-Thin Solar-Blind Silicon Photodectors	ONR	$197,645	1999
Demonstration of Interferometric Lithyography for Field Emission Devices	SRI International	$8,997	2000
High Capacity Optoelectronics Interconnects	DARPA	$6,946,311	2000-2006
Professional Services of Shoaib Zaidi	Wavefront Science	$35,776	2000
Radiation Sensitivity of Unique Memory Devices	AFRL	$43,771	2000-2001
High Dielectric Constant Oxides for Advanced Micro-electronics Application	AFRL	$815,165	2001-2003
Space Electronics Modeling, Development and Experimentation (SEMDE) UNM-3	Mission Research	$299,421	2001-2003
Development of Interferometric Lithography Techniques for Distributed Feedback Mid-infrared Interband Semi Lasers	Maxion, Inc.	$40,000	2002-2004
Growth of Direct Patterned Quantum Dots	SNL	$513,487	2002-2013
Optical Advisory Services	SRI International	$516	2002-2003

Research in Liquid Immersion Lithography	SEMATECH	$105,000	2003-2004
Developing and Modeling Fiber Lasers and Fiber Amplifier	AFRL	$35,960	2004
Interferometric Lithography of Photonic Crystals	SNL	$65,000.00	2004-2005
National Nanotechnology Information Network (NNIN)	Cornell University	$2,831,5000	2004-2008
OMC: Spatial, Temporal and Spectral Localization for Advanced Photonics Capabilities	DARPA	$5,139,327	2004-2008
Pupil filtering and Super-Resolution Imaging in Super High NA Immersion Lithography	Intel	$140,000	2004
Si nanowire devices for high-performance RF and digital applications	AFOSR	$45,000	2004
Developing Pulsed Fiber Lasers	AFRL	$117,274	2005-2007
Development of Nanofluidic Chips	Redondo Optics	$150,000	2006
High Operating Temperature Mid-Wave Infrared Focal Plane Arrays (HOT MWIR)	Lockheed Martin Corporation	$1,238,500	2006-2008
Interferometrically Defined GaN Nanoneedles for Defect Reduction in GaN-based LED's	DARPA	$250,000	2006-2007
High Power Laser Development	AFRL	$577,652	2007
REU: Nanotechnology REU Program for NNIN 2007-2009	Cornell University	$28,800	2007-2008
Metamaterials Grand Challenge	SNL	$70,000	2008
Nanofabrication for THZ Spectroscopy: Nanochannels and Nanodots	ARO	$250,000	2008-2011
Support for the 52nd EIPBN	AFOSR	$5,000.00	2008
Chipscale Nanofluidics for Chemical and Biological Separation and Sensing	NSF	$606,400	2005-2011
EFRC for Solid-State-Lighting Science: Exploring Energy Conversion in Tailored Photonic Structures	SNL	$375,000	2009-2014
Integration of Block-Copolymer with Nanoimprint Lithography: Pushing the Boundaries of Emerging Nanopatterning Technology	SNL (NINE)	$255,000	2009-2012
STTR Phase I: High Efficiency Thin-film Photovoltaics on Low-cost Substrates by Layer Transfer	Gratings Inc.	$75,000	2009-2010
Tunable Infrared Semiconductor Lasers	AFOSR	$696,176	2008-2010
Tunable IR Lasers for Gas-Phase Sensing	NSF	$690,176	2005-2011
Chirped Grating Tunable Lasers for the Infrared Molecular Fingerprint Spectral Region	DTRA	$679,150	2010-2011
Nanoscale semiconductor electronics	AFRL	$400,000	2010-2013
Radiation Effects in III-V Nanowire Devices	DTRA	$1,050,000	2011-2014
SBIR Phase I in Tunable Infrared Lasers	Southwest Sciences	$23,000	2011
Nanofluidics for DNA Separations	Redondo Optics DOD subaward	$50,000	2011-2012
Unstable Resonator Mid-Infrared Laser Sources	AFOSR	$530,468	2012-2015

Nanosystems Engineering Research Center (NERC) for Nanomanufacturing Systems for Mobile Computer Enabled Technologies (NASCENT)	UTA (NSF ERC subaward)	$2,884,457	2012-2017
TOTAL UNM FUNDING AS PI		**$111,332,318**	

Professional Society Affiliations:

American Association for the Advancement of Science (fellow)
American Physical Society
Institute of Electrical and Electronics Engineers (life fellow)
Materials Research Society
Optical Society of America (fellow)

Professional Activities:

Conference Organizing and Program Committees:

Lithography Wkshop'13	Co-Chair
EIPBN'11-'13	Advisory and Program Committees
EIPBN'10	Senior Past Chair
EIPBN'09	Junior Past Chair
EIPBN'08	Conference Chair
EIPBN'07	Steering Committee
EIPBN'06	Steering Committee
PhAST'05	Senior Past Chair
PhAST'05	Photonics in Nanotechnology Symposium Chair
EIPBN'05	Steering Committee (General Chair 2008)
EIPBN'04	Program Committee, Optical Lithography Section
PhAST'04	Photonics in Nanotechnology Symposium Chair
PhAST'04	Founding General Co-Chair;meeting co-located with CLEO/IQEC
DoD Nanomaterials	Co-Chair, Electronic Materials
CLEO'03	Chair, Long Range Planning Committee
EIPBN'02	Program Committee, Optical Lithography Section
EIPBN'01	Program Committee, Optical Lithography Section
BPPG'01	Program Committee, Glass Poling Section
CLEO'00-02	Chair, Steering Committee
CLEO'00	General Co-Chair
BPPG'99	Program Committee, Nonlinear Optical Processes
ICOSN'99	Co-chair, Joint Opt. Soc. Japan/SPIE Meeting
CLEO'99	LEAP Co-Chair
CLEO'98	Program Committee Co-Chair
SPIE'Photonics East	Doped Fiber Devices II
CLEO Pacific Rim'97	Program Committee in Nonlinear Optics
APS March Mtg.'97	Physics of Fiber Optics
SPIE'96	Doped Fiber Devices
CLEO Pacific Rim'95	Program Committee in Nonlinear Optics
Electrochem Soc.	International Symposium on Advanced Luminescent Materials (1995)
OSA	Topical Mtg: Photosensitivity and Quadratic Nonlinearity in Glass Waveguides: Fundamentals and Applications (1995)
MRS	Rapid Thermal and Integrated Processing IV (1995)
MRS	Rapid Thermal and Integrated Processing III (1994)
LEOS	New Semiconductor Lasers and Applications (1990)
CLEO'90	Optical Materials and Fabrication (chair)
IEEE/OSA	Nonlinear Optics (1990)
SRC	Metrology for Semiconductor Manufacturing (chair)
CLEO'89	Nonlinear Optics and Spectroscopy
LEOS'88	Optoelectronics
CLEO'88	Nonlinear Optics and Spectroscopy
CLEO'87	Nonlinear Optics and Spectroscopy (chair)
Southwest Conference on Optics'87	Program Coordinator

OSA/LEOS	Laser Diagnostics of Materials 1987(program chair)
IQEC'86	Semiconductor Nonlinear Optics
MRS	Laser Diagnostics and Processing for Semiconductor Device Materials (1982)
CLEO'82	Nonlinear Optics and Spectroscopy
Intl Conf. on Lasers and Applications (Rio. Brazil)	coordinator, 1982

Editorial:

IEEE Journal of Special Topics in Quantum Electronics	
Founding Editor	1995
IEEE Journal of Quantum Electronics	
Editor	1989-1994
Associate Editor	1986-1988
Optics Letters	
Associate Editor	*1984-1986*

Other:

Center for Integrated Nanotechnologies (SNL/LANL)	
Member, Scientific Advisory Committee	2003-2011
	2013-
IEEE/LEOS:	
Member, Engineering Award Committee	1997
Chair, Streifer Scientific Award Committee	1995
Member, Quantum Electronics Award Committee	1993-1994
Member, Fellow Award Committee	1993
Elected member of Board of Governors	1989-1991
Publications Committee Chair	1988
OSA:	
Member, Quantum Electronics Award Committee	*2005*
Member, Award Committee	*2004*
Member, Adolph Lomb Award Committee	*2000-2002*
Member, Nick Holnyak Jr. Award Committee	*1998*
Chair, Nick Holnyak Jr. Award Committee	*1997*
National Academies:	
National Member (for exceptional service to the National Research Council)	2011
Air Force Studies Board	2011-
Committee on Seeing Photons:	
Progress and Limits of Visible and Infrared Sensor Arrays (chair)	2009-2010
Committee on Nanophotonics Availability and Accessibility	2008
Standing committee on Avoiding Technological Surprise	2005-2011
Committee on Avoiding Technological Surprise	2004-2005
Committee on the Implications of	
Micro and Nano Technology for the Air Force (chair)	2001-2002
Committee to Provide an Assessment of Science and Technology for the	
Army After Next with an Emphasis on Logistics (AAN-LOG)	1997-1999
Research Assistantship Committee	1989-1995
Member, Committee. on Recom. for U. S. Army Basic Sci. Res.	1980-1985
Office of the Secretary of Defense	
Advanced Research in Environmental Sensing II (ARES-II) participant	2001
Army Research Office:	
Electronics Program Strategic Planning Meeting	2001

Member, Electronics Program Board of Visitors	1999
University Review Panels:	
Ghulam Issaq Khan Institute, Topi, Pakistan, International Advisory Board	1999
University of Norrth Carolina at Charlotte, Physics Department Review	1996
Materials Research Society:	
Finance Committee Member	1983-1985
American Physical Society:	
Executive Committee, New England Section	1982-1984

Awards:

Outstanding Researcher, College of Engineering, University of New Mexico, 1991
Life Fellow of the Institute of Electrical and Electronics Engineers
Fellow of the Optical Society of America
Fellow of the American Association for the Advancement of Science
IEEE Third Millenium Medal
Kreidl Memorial Lecturer, NM Materials Society, 2008
New Mexico Business Weekly, "*Who's who in Technology*," 2009
STC Innovation Fellow, 2010
National Member of the National Research Council

REFEREED JOURNAL PUBLICATIONS

S. R. J. BRUECK

G. Bekefi, A. Bers and S. R. J. Brueck
Microwave Emission from n-Type InSb at 4.2 and 77K
Phys. Rev. Lett. **119**, 24 (1967)

G. Bekefi, A. Bers and S. R. J. Brueck
Microwave Instability in n-Type Indium Antimonide
IEEE Trans. Electron Devices, **ED-14**, 593 (1967)

R. E. Slusher, W. Giriat and S. R. J. Brueck
Multiphoton-Injected Plasmas in InSb
Phys. Rev. **183**, 758 (1969)

A. Mooradian, S. R. J. Brueck and F. A. Blum
Continuously Stimulated Spin-Flip Raman Scattering in InSb
Appl. Phys. Lett. **17**, 481 (1970)

S. R. J. Brueck and A. Mooradian
Efficient, Single Mode, cw, Tunable Spin-Flip Raman Laser
Appl. Phys. Lett. **18**, 229 (1971)

S. R. J. Brueck and A. Mooradian
Near Resonance Spin-Flip Raman Scattering in Indium Antimonide
Phys. Rev. Lett. **28**, 161 (1972)

S. R. J. Brueck and F. A. Blum
Linewidth of Spontaneous Spin-Flip Light Scattering in InSb
Phys. Rev. Lett. **28**, 1458 (1972)

A. Mooradian, S. R. J. Brueck, E. J. Johnson and J. A. Rossi
Electric Field Induced Transient Spin-Flip Raman Laser Pulses in InSb
Appl. Phys. Lett. **21**, 482 (1972)

S. R. J. Brueck, A. Mooradian and F. A. Blum
Near Resonance Spontaneous Spin-Flip Light Scattering in InSb
Phys. Rev. **B7**, 5253 (1973)

S. R. J. Brueck and A. Mooradian
Spontaneous Spin-Flip Raman Linewidth and Nonlinear Processes in InSb
Optics Commun. **8**, 263 (1973)

M. A. Guerra, S. R. J. Brueck and A. Mooradian
Gradient Field Permanent Magnet Spin-Flip Laser
IEEE J. Quantum Electron. **QE-9**, 1157 (1973)

Steven R. Brueck and Aram Mooradian
Frequency Stabilization and Fine-Tuning Characteristics of a cw InSb Spin-Flip Laser
IEEE J. Quantum Electron. **QE-10**, 634 (1974)

S. R. J. Brueck and A. Mooradian
External Cavity CO_2-Pumped InSb Spin-Flip Laser
IEEE J. Quantum Electron. **QE-12**, 201, (1976)

S. R. J. Brueck and R. M. Osgood, Jr.
Vibrational Energy Relaxation in Liquid N_2-CO Mixtures
Chem. Phys. Lett. **39**, 568 (1976)

S. R. J. Brueck and A. Mooradian
Transient InSb Spin-Flip Laser - A Measurement of T_1
Opt. Commun. **18**, 539 (1976)

H. Kildal and S. R. J. Brueck
Resonant Infrared Third-Harmonic Generation in Cryogenic Liquids
Phys. Rev. Lett. **38**, 347 (1977)

S. R. J. Brueck
Vibrational Two-Photon Resonance Linewidths in Liquid Media
Chem. Phys. Lett. **50**, 516 (1977)

S. R. J. Brueck, T. F. Deutsch and R. M. Osgood, Jr.
Vibrational Energy Relaxation of CH_3F Dissolved in Liquid O_2 and Ar
Chem. Phys. Lett. **51**, 339 (1977)

S. R. J. Brueck
Polarized Vibrational Raman Scattering Lineshape Parameters in Liquid CO and Liquid CO-O_2 Mixtures
Chem. Phys. Lett. **53**, 273 (1978)

Helge Kildal and S. R. J. Brueck
Infrared Four-Wave Sum and Difference Frequency Generation in Liquid CO-O_2 Mixtures
Appl. Phys. Lett. **32**, 173 (1978)

T. F. Deutsch and S. R. J. Brueck
Collisionless Intramolecular Energy Transfer in Vibrationally Excited SF_6
Chem. Phys. Lett. **54**, 258 (1978)

S. R. J. Brueck and Helge Kildal
Efficient Phasematched Infrared Third Harmonic Generation in Liquid CO-O_2-SF_6 Mixtures
Optics Lett. **2**, 33 (1978)

S. R. J. Brueck and R. M. Osgood, Jr.
Vibrational Energy Relaxation and Exchange in Liquid N_2-CO-OCS Mixtures
J. Chem. Phys. **68**, 4941 (1978)

S. R. J. Brueck and Helge Kildal
Enhancement of Nonlinear Optical Processes with a Double-Pass Tight-Focusing Geometry
Appl. Phys. Lett. **33**, 928 (1978)

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UNM-760 *Large Area Patterning using Interferometric Lithography*, A. K. Raub, A. Frauenglass, and S. R. J. Brueck, (20070274633)

UNM-942 S. C. Lee and S. R. J. Brueck, *Cubic Phase, Nitrogen-Based Compound Semiconductor Films Epitaxially Grown on a Grooved Si(001) Substrate* (provisional 61/146,034 filed Jan. 21, 2009; utility application 12/691,463 filed 1/21/2010).

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UNM-2011-042 A. K. Raub and S. R. J. Brueck, *Large-Area Photonic Crystals with Embedded Waveguides* (provisional 23 Nov. 2010, utility 2/3/2012).

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UNM-2012-007 S. C. Lee, S. D. Hersee and S. R. J. Brueck, *GaN growth on Si(001) for Electronic Applications* (provisional 14 July 2011).

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INVITED PRESENTATIONS

S. R. J. BRUECK

Frequency Control of a Spin-Flip Laser
American Physical Society March Meeting
San Diego, CA 1973

Spin-Flip Raman Scattering
International Conference on the Physics of Semiconductors
Stuttgart, Federal Republic of Germany 1974

Vibrational Energy Relaxation in Liquid N_2-CO Mixtures
International Conference on Lasers and Applications
Loen, Norway 1976

Resonant Infrared Third Harmonic Generation in Cryogenic Liquids
Seventh Winter Colloquium on High Power Visible Lasers
Park City, UT 1976

Vibrational Energy Transfer Processes in Simple Cryogenic Liquids
Gordon Research Conference on Molecular Energy Transfer
Wolfeboro, NH 1977

Nonlinear Optics of Cryogenic Liquids
Gordon Research Conference on Nonlinear Optics
Wolfeboro, NH 1977

Resonant Infrared Four-Wave Mixing in Cryogenic Liquids
Optical Society of America Annual Meeting
Toronto, Ontario, Canada 1977

Molecular Vibrations in Simple Liquids - Spectroscopy, Kinetics and Applications
Harvard/MIT Physical Chemistry Colloquium
Cambridge, MA 1978

Vibrational Kinetics in Cryogenic Liquids and Applications to Nonlinear Optics
Society of Photo-Optical Instrumentation Engineers Meeting
San Diego, CA 1978

Nonlinear Optics of Cryogenic Liquids
International Conference on Lasers and Applications
Rio de Janiero, Brazil 1980

Excitation of Surface Optical Waves and Material Ripples by Stimulated Scattering
Optical Society of America Annual Meeting
Tucson, AZ 1982

Optical Microanalysis of Small Device Structures
Materials Research Society Meeting
Boston, MA 1982

Optical Analysis of Semiconductor Materials, Structures and Processing
CLEO
Anaheim, CA 1984

Optical Microanalysis of Device Materials and Structures
International Conference on Laser Processing and Diagnostics: Applications to Electronic Materials
Linz, Austria 1984

Laser Diagnostics of Semiconductor Fabrication Processes and Devices
Materials Research Society Meeting
Boston, MA 1984

Laser Probes of Semiconductor Materials and Devices
IBM Europe Institute
Oberlech, Austria 1985

Microstructure Electromagnetic Effects
OSA Annual Meeting
Washington, DC 1985

Stimulated Surface Wave Scattering
International Laser Symposium
Dallas, TX 1985

Microstructure Electromagnetic Effects in Laser-Material Interactions
16th Winter Colloquium on Quantum Electronics
Snowbird, UT 1986

Optical Probes of Semiconductor Materials and Devices
Laser Processing of Semiconductors
Microstructure Effects in Laser-Material Interactions
12th Nathia Gali International Summer College
Nathia Gali, Pakistan 1987

cw Operation of Surface Emitting Lasers
IEEE Workshop on Diode Lasers
Baltimore, MD 1989

Metrology Definitions
SRC Topical Research Conference
Metrology for Semiconductor Manufacturing
Santa Fe, NM 1990

Nonlinear Optics of Thin Film PLZT
Tenth Intl. Vavilov Conf. on Nonlinear Optics
Novosibirsk, USSR 1990

Submicrometer Lithographic Alignment and Overlay Strategies
SPIE
San Diego, CA 1990

Nonlinear Optics of Thin Film PLZT
IEEE/LEOS and OSA Topical Research Conference on Nonlinear Optics
Kauai, HI 1990

Gain Switching and High Power Operation of Surface Emitting Lasers
Engineering Foundation Conference on
High-speed / High Frequency Optoelectronics
Palm Coast, FL 1991

Metrology Matters
SPIE Southcentral'91 Syposium
Monitoring and Characterization in Microelectronics Manufacturing
Dallas, TX 1991

Realtime Temperature Measurement
AT&T Bell Laboratories
Working Group on RTP Temperature Measurement
Murray Hill, NJ 1991

Building Market Driven Research Programs and Consortia (panelist)
Technology Commercialization, Innovative Alliances for Economic Development
Albuquerque, NM 1991

Introduction to Moiré Interferometry and its Application to Semiconductor Manufacturing
LEOS'91
San Jose, CA 1991

Ferroelectric Films for Integrated Optics
International Symposium on Integrated Ferroelectrics
Monterey, CA 1992

Temperature Measurement for RTP
SEMATECH SCOE Coordination Meeting
Austin, TX 1992

Real-Time Process Monitors for Semiconductor Manufacturing
NATO Advanced Study Insitute on *In-Situ* Processing
The Physics and Technology of Surface Modification
Viana Do Castelo, Portugal 1992

Large Second-Order Nonlinearity in Fused Silica
Gordon Research Conference on Optical Properties of Glass
Tilton, NH 1992

Future Prospects of Optoelectronics
Panel Discussion at OSA'92
Albuquerque, NM 1992

Temperature Measurement for RTP
MRS Spring 1993 Mtg. Symp. G
San Francisco, CA 1993

Temporal and Spectral Studies of Large $\chi^{(2)}$ in Fused Silica
SPIE Meeting on
Quebec City, Quebec, Canada 1993

Si-Based Optoelectronics ?
International Conference and School on Applications of Nonlinear Optics
Prague, Czech Republic 1993

University/Industry Relationships
Panel Discussion at SPIE Mtg on Optical Tools for Manufacturing
Boston, MA 1993

Real-Time Monitors for Semiconductor Manufacturing
Science and Technology of Manufacturing, Topical Symposium at the
American Vacuum Society National Symposium
Orlando, FL 1993

Scalable Fabrication and Optical Characterization of Mesoscopic Si Structures
American Physical Society, March Meeting
Pittsburgh, PA 1994

Temperature Measurement Panel Discussion
Materials Research Society, Spring Meeting
Symposium G: Rapid Thermal and Integrated Processing III
San Francisco, CA 1994

Applications of Thin-Film Nonlinear Optical Materials
Materials Research Society, Spring Meeting
Symposium on Epitaxial Oxide Thin Films and Heterostructures
San Francisco, CA 1994

Scalable Si Nanofabrication Technology
CLEO'94
Anaheim, CA 1994

Diffractive Techniques for Lithographic Process Monitoring and Control
Ion, Electron and Photon Beams for Lithography
New Orleans, LA 1994

Recent Advances in the Second-Order Nonlinear Optical Properties of Amorphous Silica Materials
SPIE, Doped Fiber Devices and Systems
San Diego, CA 1994

Scalable Fabrication and Optical Characterization of nm Si Structures
MRS Symposium: *Microcrystalline and Nanocrystalline Semiconductors*, Paper F4.1
Boston, MA 1994

Perspectives on Glass Poling (plenary presentation)
Topical Conference on Photosensitivity and Quadratic Nonlinearities in Glass Waveguides
Portland, OR 1995

Optoelectronic Diagnostics for Semiconductor Manufacturing
Manufacturing Subcommitte, Committee on Optical Science and Engineering,
National Research Council
Irvine, CA 1995

Optical Diagnostics of Semiconductor Manufacturing Processes
Materials Research Society Fall Meeting
Symposium L: Diagnostic Techniques for Semiconductor Materials Processing
Boston, MA 1995

Interferometric Lithography for Field-Emitter Displays
USDC "Open House" for Tool Manufacturers
San Jose, CA 1996

Nonlinearities, SHG and Poling in Silica Fibers
Optical Fiber Conference
San Jose, CA 1996

Perspectives on Glass Poling
First Sino-American Workshop on Microstructured Crystals for Nonlinear Optics
Nanjing, People's Republic of China 1996

Poling of Optical Fiber Materials
Fiber Materials for Electronics, Optoelectronics and Sensors
Materials Research Society
San Francisco, CA 1996

Interferometric Lithography - A Novel Approach to Nanometer Structrures
Symposium on Computational Methods for Simulating IC Manufacturing Processes
Society for Industrial and Applied Mathematics (SIAM) Annual Meeting
Kansas City, MO 1996

Interferometric Lithography - A Novel Approach to Nanometer Structrures
IEEE Lithography Workshop
Maui, HI 1996

Interferometric Lithography for Field-Emitter Devices
AVS Annual Meeting
Philadelphia, PA 1996

Industry-University Interactions in Optoelectronics
OIDA Executive Forum
Washington, DC 1996

Standard Defect Wafers
SEMATECH Analytical Managers Meeting
Austin, TX 1996

Perspectives on Nanoscale Lithography
Sixth NASA Symposium on VLSI Design
Albuquerque, NM 1997

Interferometric Nano-Lithography for Periodic Pinning
Flux, Quantum, and Mesoscopic Effects in Superconducting Materials and Devices
Santa Fe, NM 1997

Interferometric Lithography - A Novel Approach to the nm Regime
2nd International Conference on Future Information Technologies
Kita-Hiroshima, Hokkaido, Japan 1997

Interferometric Lithography for Nanoscale Structures
Gaseous Electronics Conference
Madison, WI 1997

Material and Device Aspects of Poled Fused Silica
American Ceramic Society/Optical Society of America
Bragg Gratings, Photosensitivity, and Poling in Glass Fibers and Waveguides
Williamsburg, VA 1997

Imaging Interferometric Lithography – A Wavelength Division Multiplex Approach to Extending Optics
EIPBN'98
Chicago, IL 1998

Imaging Interferometric Lithography – A Wavelength Division Multiplex Approach to Extending Optics
Gordon Conference on Nanostructure Fabrication
Tilton, NH 1998

Imaging Interferometric Lithography - Optics to the "Max" and Beyond
OpTec Research Conference
Bozeman, MT 1998

Second-Order Nonlinearities in Poled Fibers
European Conference on Optical Communications
Madrid, Spain 1998

Spatial Frequency Analysis of Resolution Enhancement Techniques
Optical Enhancements Workshop, International SEMATECH
Austin, TX 1998

Interferometric Lithography for Nanoscale Fabrication
Laser Applications in Microelectronic and Optoelectronic Manufacturing IV
SPIE Photonics West
San Jose, CA 1999

The Year 2001 Lithography Problem
Optoelectronics'99 (Plenary Presentation)
SPIE Photonics West
San Jose, CA 1999

25-nm Lithography in 2020 (panel discussion)
SPIE Microlithography'99 Emerging Technologies
Santa Clara, CA 1999

Imaging Interferometric Lithography for Sub-Wavelength Resolution
APS Centennial Meeting
Altanta, GA 1999

Poling of Fused Silica - A Never-Ending Process
Novel Optical Materials and Applications (NOMA'99)
Cetraro, Italy 1999

Imaging Interferometric Lithography – Extending Optics to Fundamental Limits and Beyond
Intl. Congress on Optics (ICO'99)
San Francisco, CA 1999

Space Charge in Termally Poled Fused Silica
Bragg Gratings, Photosensitivity and Poling in Glass Waveguides (BGPP'99)
Stuart, FL 1999

Enhanced Detectors by Nanoscale Texturing
Photonics West
San Jose, CA 2000

A University View on Industry Roadmaps: Long-Term Perspectives on Short-Term Roadmaps
AAAS Annual Meeting
Washington, DC 2000

Imaging Interferometric Lithography: approaching fundamental optics limits
SPIE OptoSW
Albuquerque, NM 2000

Nanoheteroepitaxy – A Nanofabrication Route to Improved Epitaxial Growth
EIPBN'2000
Palm Desert, CA 2000

Developments in Imaging Interferometric Lithography
IEEE Lithography Workshop
St. John, USVI 2000

Fabrication and Application of Semiconductor Nanostructures
Government Microelectronic Applications Conference GOMAC'01
San Antonio, TX 2001

Nanostructure Enhanced Optical Interactions
American Physical Society March Meeting
Seattle, WA 2001

Lithography – Advances in Optics (tutorial)
OSA Annual Meeting
Long Beach, CA 2001

Nanostructures for Environmental Sensing
Biological Threat Reduction Conference
Albuquerque, NM 2002

Interferometric Lithography and Nanoscale Patterned Semiconductor Growth
Material Research Society
Boston, MA 2002

Implications of Emerging Micro- and NanoTechnologies
IROS'03
Las Vegas, NV 2003

There are no Limits to Optical Lithography
SPIE Photonics West
San Jose, CA 2004

Nanoscale Epitaxial Growth – A New Paradigm
SPIE Photonics West
San Jose, CA 2004

NanoScale Epitaxial Growth – A New Paradigm
DOD Nanomaterials Conference
Wailia, HI 2004

Phat Photons and Nifty Nanoscience
CREOL Industrial Affiliates
Orlando, FL 2004

Photonics in Nanoscience (plenary presentation)
PhAST
San Francisco, CA 2004

There are NO Fundamental Limits to Optical Lithography
LEOS Annual Meeting
Puerto Rico 2004

Infrared Metamaterials and Plasmonics
Photonics West
San Jose, CA 2005

Phat Photons and Nifty Nanoscience (plenary presentation)
Laser Precision Microfabrication
Williamsburg, VA 2005

Implications of Emerging Micro- and Nanotechnologies
Nano Applications Summit 2005
Cleveland, OH 2005

There are NO Limits to Optical Lithography
AMSE National Congress
Orlando, FL 2005

Nanophotonics for Infrared Detectors
2nd Symposium on Infrared Materials and Technologies
State College, PA 2005

Phat Photons for Nifty Nanoscience
nanoMems
Kharagpur, India 2005

Lithographic Tools for Nanophotonics
Nanophotonics Workshop
Tysons Corner, VA 2006

Large-Area Metamaterials by Interferometric Lithography
APS March Meeting
Baltimore, MD 2006

Interferometric Lithography and Directed Self-Assembly – Competitors and Complements to NanoImprint Lithography
NanoImprint Workshop
Charlotte, NC 2006

Plasmonics and Metamaterials: Linear and Nonlinear Optical Properties
International Union of Radio Science (URSI)
Albuquerque, NM 2006

Large-Area Interferometric Lithography Fabrication of Nanophotonic Materials
IEEE Nano Conference
Cincinnati, OH 2006

Nanophotonics and Plasmonics
Advanced Electromagnetic Materials (Short course)
Mitre
Tysons Corner, VA 2006

Large-Area Metamaterials and Plasmonics using Interferometric Lithography
Metamaterials Summer School
Bad Honnef, Germany 2006

Optical and Interferometric Lithography – Nanotechnology Enablers
Future Technolgies II
Washington, DC 2006

Nanostructures by the Square Yard
DARPA/DSRC Workshop
Advancing State-of-the-Art Nanofabrication of Complex Structures
Arlington, VA 2007

Plasmonics and Negative Index Materials
ICAM Workshop on Energy Transfer
Santa Fe, NM 2007

Nanofabrication for Nanophotonics
DARPA Workshop on Metamaterials
Arlington, VA 2007

Large-Area Metamaterials by Interferometric Lithography
Joint Conference on Information Science
Salt Lake City, Utah 2007

Metamaterial Nanofabrication
International Workshop on Electromagnetic Metamaterials
Los Alamos, NM 2007

A Frequency Space Perspective on Double Patterning
SPIE Photomask Conference
Monterey, CA 2007

S. R. J. Brueck
Large-Area Nanolithography for Materials Research
N. J. Kreidl Memorial Lecture
Rio Grande Materials Research Society
Albuquerque, NM 2007

S. R. J. Brueck
Nanostructures by the Square Yard: Large-Area Plasmonics and Metamaterials
IEEE LEOS – Boston Section Plasmonics Course
Lexington, MA 2007

Large-Area Nanophotonics using Interferometric Lithography
Photonics West
San Jose, CA 2008

Introduction to Imaging
Metamaterials Short Course
Estes Park, CO 2008

Large-Area Fabrication of Metamaterials
Metamaterials Short Course
Estes Park, CO 2008

Large-Area Linear and Nonlinear Nanophotonics
LEOS Annual Meeting
Newport Beach, CA 2008

Large-Area Nanophotonics
Workshop on WaveFunction Engineering and Control in Nanostructured materials
Los Alamos, NM 2009

Linear and Nonlinear Properties of Large-Area Nanophotonics
IQEC
Baltimore, MD 2009

Linear and Nonlinear Properties of Large-Area Nanophotonics
NSRC Contractors Meeting
Annapolis, MD 2009

Epitaxial Growth on Nanoscale Patterned Surfaces
ICMAT
Singapore 2009

Imaging Interferometric Microscopy – Resolution to the Linear Systems Limit (plenary)
EOS'09
Capri, Italy 2009

Imaging Interferometric Microscopy – Resolution to the Linear Systems Limit
LEOS'09
Antalya, Turkey 2009

Large-Area Linear and Nonlinear Nanophotonics
Workshop on Future Electronics
Rincon, PR 2009

Large area Linear and Nonlinear Nanophotonics
Physics of Quantum Electronics
Snowbird, UT 2010

Large-Area Linear and Nonlinear Nanophotonics
EIPBN'10
Anchorage, AK 2010

Seeing Photons: Progress and Limits of Visible and Infrared Focal Plane Arrays
IEEE Photonics Society Annual Meeting 2010
Denver, CO 2010

Large-Area Linear and Nonlinear Nanophotonics
PQE'10
Snowbird, UT 2010

Large-Area Linear and Nonlinear Nanophotonics
EIPBN'10
Anchorage, AK 2010

Recent Progress in Metamaterials Research
Progress in Electromagnetics Research Symp. (PIERS)
Marrakesh, Morocco 2011

Imaging Interferometric Microscopy
Progress in Electromagnetics Research Symp. (PIERS)
Marrakesh, Morocco 2011

Functional Materials with Interferometric Lithography
Summer School on Nanomaterials and Fabrication
University of Toronto
Toronto, Ontario, Canada 2011

Interferometric Imaging Nanoscopy
Summer School on Nanomaterials and Fabrication
University of Toronto
Toronto, Ontario, Canada 2011

DNA Transport in Nanoparticale Porous-Wall Nanotubes
Nanoelectronics for Defense and Security (Nano-DDS)
Brooklyn, NY 2011

Surface Plasma Wave Enhanced Infrared Detection
International Conference on Metamaterials, 2011
Barcelona, Spain 2011

Ultrafast Metamaterial Switching and
Surface Plasma Wave Enhanced Infrared Detection
Workshop on Metamaterial Applications
Virginia Beach, VA 2011

III-V Nanowire Devices for Radiation Effect Studies
S. C. Lee, A. Chaudhuri, N. Youngblood, A. Sharma, D. Telesca and C. Mayberry
GOMATech'12
Las Vegas, NV 2012

Surface-Plasma-Wave Enhanced Infrared Detectors
Photonics West
San Francisco, CA 2013

SEMINARS

S. R. J. Brueck

Spin-Flip Raman Scattering
Frances Bitter National Magnet Laboratory
MIT
Cambridge, MA 1971

Spontaneous and Stimulated Spin-Flip Raman Scattering in InSb
Lawrence Livermore Laboratory
Livermore, CA 1973

Spontaneous and Stimulated Spin-Flip Raman Scattering in InSb
IBM San Jose Research Laboratory
San Jose, CA 1973

Spontaneous and Stimulated Spin-Flip Raman Scattering in InSb
Optical Sciences Center
University of Arizona
Tucson, AZ 1973

Spontaneous and Stimulated Spin-Flip Raman Scattering in InSb
University of California - Berkeley
Berkeley, CA 1973

Spontaneous and Stimulated Spin-Flip Raman Scattering in InSb
Aerospace Corporation
Los Angeles, CA 1973

Spontanous Spin-Flip Raman Scattering - Experimental
Spin-Flip Raman Scattering - Theory
Stimulated Spin-Flip Raman Scattering in InSb
Heriot-Watt University
Edinburgh, Scotland, UK 1974

Spin-Flip Raman Scattering
National Research Council
Ottawa, Ontario, Canada 1975

Vibrational Kinetics in Cryogenic Liquids and Applications to Nonlinear Optics
Los Alamos Scientic Laboratory
Los Alamos, NM 1978

Infrared Nonlinear Optics with Cryogenic Liquids
Memorial University of Newfoundland
St. John's, Newfoundland, Canada 1979

Nonlinear Susceptibilities of Liquids and Solids
Research Laboratory of Electronics
MIT
Cambridge, MA 1980

Nonlinear Optics of Simple Liquids
Sandia Laboratories
Albuquerque, NM 1981

Photoacoustic Spectroscopy of Liquids
Air Force Weapons Laboratory
Albuquerque, NM 1981

Nonlinear Susceptibilities in Condensed Matter
Worcester Polytechnic Institute
Worcester, MA 1981

Nonlinear Susceptibilities in Condensed Matter
GTE Laboratories
Waltham, MA 1982

Nonlinear Optics with Simple Molecular Liquids
University of Toronto
Toronto, Ontario, Canada 1982

Stimulated Surface Plasma Waves and the Formation of Surface Ripples in Laser-Material Interactions
Bell Telephone Laboratories, Murray Hill, NJ 1982

Laser Probing of Semiconductor Materials and Device Structures
Boston Section IEEE
Quantum Electronics and Applications Society 1983

Stimulated Surface Wave Scattering in Laser Material Interactions
Raytheon Research Division Seminar
Lexington, MA 1983

Stimulated Surface Wave Scattering in Laser Material Interactions
MIT Quantum Optics Seminar
Cambridge, MA 1983

Stimulated Surface Wave Scattering in Laser Material Interactions
Technical University
Vienna, Austria 1983

Microstructure Electromagnetic Effects in Laser-Material Interactons
Columbia University Radiation Laboratory Seminar
New York, NY 1983

Microstructure Electromagnetic Effects in Laser-Material Interactons
Boston University Chemistry Department Seminar
Boston, MA 1983

Microstructure Electromagnetic Effects in Laser-Material Interactons
Hughes Research Laboratories
Malibu, CA 1984

Laser-Microstructure Interactions
University of Lund
Lund, Sweden 1984

Microstructure Electromagnetic Effects in Laser-Material Interactions
Norwegian Defense Research Establishment
Olso, Norway 1984

Optical Diagnostics of Semiconductor Materials, Structures and Processing
Norwegian Defense Research Establishment
Oslo, Norway 1984

Laser-Microstructure Interactions
Norwegian Institute of Technology
Trondheim, Norway 1984

Microstructure Electromagnetic Effects in Laser-Material Interactions
Washington University Electrical Engineering Dept.
St. Louis, MO 1984

Laser-Microstructure Interactions
IBM T. J. Watson Research Center
Yorktown Heights, NY 1985

Laser Probes of Semiconductor Materials and Processing
Los Alamos National Laboratory
Chemistry Division Seminar
Los Alamos, NM 1985

Microstructure Electromagnetic Effects
Sandia National Laboratories
Albuquerque, NM 1985

Electrooptics Research at the UNM Center for High-Technology Materials Photonics Alliance
Los Alamos, NM 1986

Microstructure Electromagnetic Effects for Device Applications
Sandia National Laboratory
Albuquerque, NM 1986

Microstructure Electromagnetic Effects
Physics Department Colloquium
North Texas State University
Denton, TX 1986

Optical Probes of Semiconductor Materials and Devices
OSA/IEEE-LEOS Joint Meeting
North Texas Chapter
Dallas, TX 1986

Optical Diagnostics of Semiconductor Materials and Devices
Texas Instruments Colloquium
Dallas, TX 1987

Optoelectronics Research at UNM
Colloquium - Optical Computing Center
University of Colorado
Boulder, CO 1988

Surface-Emitting Lasers
Albuquerque Section,
Optical Society of America
Albuquerque, NM 1988

Optoelectronics Research at UNM:
Surface Emitters and MSM Photodiodes
Bell Communications Research
Navesink, NJ 1988

From Laser-Surface Diagnostics to Surface
Emitting Lasers
IBM General Products Division
Tucson, AZ 1989

On-Line Analysis and Metrology for Semiconductor Manufacturing
National Institute for Standards and Technology
Gaithersburg, MD 1989

Nonlinear Optics of PLZT Thin Films
Sandia National Laboratories
Albuquerque, NM 1989

Surface-Emitting Semiconductor Lasers
MIT Lincoln Laboratory
Solid-State Division Colloquium
Lexington, MA 1989

From Laser Surface Diagnostics to Surface Emitting Lasers
United Technologies Research Center
Hartford, CT 1989

Surface-Emitting Semiconductor Lasers
Polaroid Corporation
Cambridge, MA 1989

Nonlinear Optics of PLZT Thin Films
Los Alamos National Laboratory
Los Alamos, NM 1989

Surface-Emitting Semiconductor Lasers
Materials Research Colloquium
AT&T Bell Laboratories
Murray Hill, NJ 1990

Semiconductor Metrology
Microelectronics Development Laboratory
Sandia National Laboratories
Albuquerque, NM 1990

High-Speed uv Detectors
Maxwell Laboratories
San Diego, CA 1990

Metrology Matters
Motorola
Phoenix, AZ 1990

Scatterometry Applications
KLA Instruments
Santa Clara, CA 1990

Metrology Matters
Texas Instruments Materials Science Colloquium
Dallas, TX 1990

Metrology Matters: A Review of the New Mexico SCOE
SEMATECH
Austin, TX 1990

Alignment and Overlay Measurement Strategies
SVG Lithography
Norwalk, CT. 1991

Uses of Gratings for Semiconductor Manufacturing Metrology
AT&T Bell Laboratories
Murray Hill, NJ 1991

Progress in Surface Emitting Lasers
Solid State Sciences Colloquium
Stanford University
Stanford, CA 1991

Metrology Matters
IBM T. J. Watson Research Center
Yorktown Hts., NY 1991

Quantum Wires to Smart Pixels
Martin Marietta Research Laboratories
Baltimore, MD 1991

Quantum Wires to Smart Pixels
U. S. Army Laboratory Command
Harry Diamond Laboratories
Adelphi, MD 1991

Quantum Wires to Smart Pixels
Motorola Phoenix Corporate Research Laboratory
Phoenix, AZ 1991

Metrology Matters
Motorola Semiconductor Products Sector
Mesa, AZ 1991

Metrology Matters
Advanced Micro Devices
Sunneyvale, CA 1991

Metrology Matters
Hewlett-Packard
Palo Alto, CA 1991

Quantum Wires to Smart Pixels
Hewlett Packard Central Research Laboratory
Palo Alto, CA 1991

Metrology Matters
Intel Research Laboratory
Santa Clara, CA 1991

Metrology Matters
Sandia National Laboratory
Albuquerque, NM 1991

Perspectives on Optical Lithography
Los Alamos National Laboratory
Los Alamos, NM 1991

Lithography Metrology
SEMATECH
Austin, TX 1992

Temperature Measurement for Rapid Thermal Processing
SEMATECH
Austin, TX 1992

Metrology Matters
Advanced Micro Devices
Austin, TX 1992

Quantum Wires to Smart Pixels
New Mexico State University
Las Cruces, NM 1992

Perambulations in Periodicity
University of New Mexico
College of Engineering Research Excellence Award
Albuquerque, NM 1992

Quantum Wires to Smart Pixels
Rice University ECE Seminar
Houston, TX 1992

Darpa Optoelectronic Materials Center
Arlington, VA 1992

Thin Films for Nonlinear Optics
Stanford University
Stanford, CA 1992

Metrology Matters
North Carolina State University
Advanced Electronic Materials Processing Seminar
Raleigh, NC 1992

Si-Based Optoelectronics?
Ontario Laser and Lightwave Research Center
University of Toronto
Toronto, Ontario, Canada 1992

Metrology for Sub-μm Lithography
AT&T Bell Laboratories
Murray Hill, NJ 1992

Si-Based Optoelectronics?
C. S. Draper Laboratories
Cambridge, MA 1993

Multiple Exposure Interferometric Lithography
Sandia National Laboratories, Livermore
Livermore, CA 1994

Nonlinear Optical Properties of Fused Silica
Deacon Research, Inc.
Palo Alto, CA 1994

Moiré Alignment and Overlay Measurements
KLA Instruments
San Jose, CA 1994

Optoelectronic Materials Center
Hewlett-Packard III-V Symposium
Cupertino, CA 1994

Multiple-Exposure Interferometric Lithography
Coloray
Fremont, CA 1994

Optoelectronics at UNM - from Networks to Measurement
National Institute of Standards and Technology
Boulder, CO 1994

Optical Properties of "Modified" Si
National Renewable Energy Laboratory
Golden, CO 1994

Si-Based Optoelectronics?
Texas Instruments Colloquium
Dallas, TX 1994

Multiple-Exposure Interferometric Lithography: Field-Emitter Tips to Quantum Structures.
AT&T Bell Laboratories
Murray Hill, NJ 1994

Si-Based Optoelectronics?
Solid-State Physics Division Seminar
MIT Lincoln Laboratory
Lexington, MA 1994

Interferometric Lithography for Flat Panel Displays
Texas Instruments
Dallas, TX 1995

Grating and Speckle Temperature Measurement for Si Manufacturing
Semiconductor Process Development Center
Texas Instruments
Dallas, TX 1995

Interferometric Lithography for Field-Emitter Applications
Motorola Phoenix Corporate Research Laboratory
Phoenix, AZ 1995

Interferometry -- From Metrology to a Novel 0.05-μm Lithography
SEMATECH
Austin, TX 1995

Alignment, Overlay and Positioning
SVGL
Wilton, CT 1995

Perspectives on Glass Poling
Quantum Electronics Seminar
Stanford University
Stanford, CA 1995

Interferometric Lithography — A Novel Approach to nm-Scale Structures
AMD
Sunnyvale, CA 1995

Interferometric Lithography — A Novel Approach to nm-Scale Structures
National Semiconductor Corporation
Santa Clara, CA 1995

Interferometric Lithography — A Novel Approach to nm-Scale Structures
Coherent, Inc.
Santa Clara, CA 1995

Interferometric Lithography — A Novel Approach to nm-Scale Structures
Ultratech Stepper Corporation
San Jose, CA 1995

Interferometric Lithography for Nanoscale Fabrication
Texas Instruments
Dallas, TX 1996

Interferometric Lithography for Nanoscale Fabrication
Sandia National Laboratories
Albuquerque, NM 1996

Perspectives on Glass Poling
Solid-State Optical Materials and Devices
National Taiwan University
Taipei, Republic of China 1996

Current Directions in Nanoscale Lithography
Solid-State Optical Materials and Devices
National Taiwan University
Taipei, Republic of China 1996

Interferometric Lithography - A Novel Approach to Nanometer Structrures
Optical Specialities, Inc.
Fremont, CA 1996

Interferometric Lithography - A Novel Approach to Nanometer Structrures
IBM Almaden Research Center
San Jose, CA 1996

Interferometric Lithography for Nanoscale Fabrication
Motorola Advanced Products Reseach & Development Center
Austin, TX 1996

Interferometric Lithography for Nanoscale Fabrication
Intel/UNM Distinguished Lecture Series
Rio Rancho, NM 1996

Silica Poling and Interferometric Lithography - Two Sensor Technologies?
Sandia National Laboratories
Albuquerque, NM 1996

Imaging Interferometric Lithography for Arbitrary Patterns
Texas Instruments
Dallas, TX 1997

Imaging Interferometric Lithography for Arbitrary Patterns
University of Texas, Microelectronics Research Center
Ausitn, TX 1997

Imaging Interferometric Lithography for Arbitrary Patterns
SEMATECH
Austin, TX 1997

Imaging Interferometric Lithography for Arbitrary Patterns
Motorola, APRDL
Austin, TX 1997

Imaging Interferometric Lithography – Optics to the "Max" and Beyond
Physical Sciences Seminar
IBM T. J. Watson Research Center
Yorktown Heights, NY 1998

Imaging Interferometric Lithography – Optics to the "Max" and Beyond
Silicon Valley Group Lithography
Wilton, CT 1998

Imaging Interferometric Lithography -
A WDM Approach to Extending Optics beyond 100 nm
SEMATECH
Austin, TX 1998

Spatial Frequency Analysis of Resolution Enhancement Techniques
MIT Nanostructures Laboratory
Cambridge, MA 1998

Spatial Frequency Analysis of Resolution Enhancement Techniques
MIT Lincoln Laboratory
Lexington, MA 1998

Imaging Interferometric Lithography for Deep Sub-Wavelength CDs
Intel Corporation
Santa Clara, CA 1999

Imaging Interferometric Lithography for Nanoscale Fabrication
Stanford University, Quantum Electronics Seminar
Stanford, CA 1999

Imaging Interferometric Lithography for Deep Sub-Wavelength Structures
IBM Almaden Research Center
San Jose, CA 1999

Imaging Interferometric Lithography for Deep Sub-Wavelength Structures
Center for Nanostructures
University of Wisconsin
Madison, WI 1999

Deep Sub-Wavelength Optical Nanolithography
Cymer, Inc.
San Diego, CA 1999

Imaging Interferometric Lithography – Pushing Optics to Fundamental Limits
Texas Tech Univ.
Lubbock, TX 1999

Imaging Inteferometric Lithography for Deep Sub-Wavelength Structures
Microelectronics Research Center
University of Texas
Austin, TX 2000

Imaging Interferometric Lithography
ASML
Tempe, AZ 2000

A Nanotechnology Perspective
3M Research Laboratory
Austin, TX 2000

Nanoscience Research at Center for High Technology Materials
Sandia National Laboratories
Albuquerque, NM 2000

Optoelectronics Research at CHTM
Intel Corporation
Rio Rancho, NM 2001

There are No Fundamental Limits to Optical Lithography
Army Research Laboratory
Adelphi, MD 2002

There are No Fundamental Limits to Optical Lithography
Naval Research Laboratory
Washington, DC 2002

There are No Fundamental Limits to Optical Lithography
MIT Lincoln Laboratory
Lexington, MA 2002

There are No Fundamental Limits to Optical Lithography
University of Toronto
Toronto, Ontario, Canada 2002

There are No Fundamental Limits to Optical Lithography
Oak Ridge National Laboratory
Oak Ridge, TN 2002

There are No Fundamental Limits to Optical Lithography
Vanderbilt University
Nashville, TN 2002

Nanostructures for Environmental Monitoring
Nanotechnology Workshop, UNM 2003

Nanostructures for Biology?
UNM Biology Department Seminar 2003

Phat Photons to Nifty Nanoscience
UNM Physics and Astronomy Department Colloquium 2003

Phat Photons to Nifty Nanoscience
Arizona State University Seminar 2003

There are NO Fundamental Limits to Optical Lithography
Sandia National Laboratories 2003

Phat Photons and Nifty Nanoscience
Sandia National Laboratories 2004

Phat Photons and Nifty Nanoscience
Los Alamos National Laboratory 2004

Phat Photons and Nifty Nanoscience
Army Research Laboratory 2004

Phat Photons and Nifty Nanoscience
University of Arizona, Optical Sciences Center 2004

Phat Photons and Nifty Nanoscience
University of North Carolina, Charlotte 2004

There are NO Fundamental Limits to Optical Lithography
Texas Instruments, Dallas 2004

Photonic Crystals for Light Extraction from LEDs
Lumileds, Inc., San Jose, CA 2005

Phat Photons and Nifty Nanoscience
SRI, Menlo Park, CA 2005

Visible/Infrared Nanophotonics: Photonic Crystals, Plasmonics and Metamaterials
OSA Student Chapter, UNM 2005

Phat Photons for Nifty Nanoscience
Sandia National Laboratories, Albuquerque, NM 2005

Nanophotonics, Metamaterials, Negative Index and all that Jazz
Lockheed Martin Missiles and Fire Control, Orlando, FL 2005

Nanophotonics and all that Jazz
SRI, Menlo Park, CA 2005

Phat Photonics for Nifty Nanoscience
UCLA Electrical Engineering Colloquium
Los Angeles, CA 2006

Inteferometric Lithography for Nanoscale Manufacturing
Intevac
Santa Clara, CA 2006

Beyond Rayleigh – Optics to the Min
KLA-Tencor Colloquium
Milpitas, CA 2006

Nanophotonics and Plasmonics
Presentation to National Academies Panel on Nanophotonics
Albuquerque, NM 2006

Phat Photons for Nifty Nanoscience
NIST
Gaithersberg, MD 2007

Phat Photons for Nifty Nano(Bio)Science
UNM IGERT Seminar
Albuquerque, NM 2007

Imaging Interferometric Microscopy – Approaching Nanoscopy
University of Arizona College of Optical Science
Tucson, AZ 2008

Imaging Interferometric Microscopy – Optics to the Nanoscale
Columbia University ECE Department Seminar
New York, NY 2008

Large-Area Nanopatterning – From Metamaterials to Nanofluidics
National University of Singapore 2009
Singapore

Functional Nanomaterials and Nanodevices by Interferometric Lithography
MIT Lincoln Laboratory
Lexington, MA 2011

Functional Nanomaterials by Interferometric Lithography
University of Texas at Austin
Austin, TX 2012

Imaging Interferometric Microscopy – Resolution to the Linear Systems Limits
NIST
Gaithersburg, MD 2012

MEETING PRESENTATIONS (MOST RECENT FIVE YEARS)

S. R. J. Brueck

S. R. J. Brueck (invited paper)
Lithograhic Tools for Nanophotonics
Nanophotonics Workshop, Tysons Corner, VA 2006

S. R. J. Brueck (invited paper)
Large-Area Metamaterials by Interferometric Lithography
APS March Meeting
Baltimore, MD 2006

N. Panoiu, R. M. Osgood, S. Zhang* and S. R. J. Brueck
Zero-n Band Gap in 1D Periodically Layered Photonic Superlattices
APS March Meeting
Baltimore, MD 2006

W. Pan, R. G. Dunn, J. L. Reno, J. A. Simmons, D. Li* and S. R. J. Brueck
Anomolous Electronic Transport Features in a Lateral Quantum Dot Array Sample
APS March Meeting
Baltimore, MD 2006

Y. Kuznetsova*, A. Neumann* and S. R. J. Brueck,
Imaging Interferometric Microscopy
Fundamentals of Microscopy'06
Perth, Australia 2006

Deying Xia*, Dong Li*, Ying Luo*, Zahyun Ku*, Abani Biswas and S. R. J. Brueck
Lithographically Templated and Defined Surface Structures of Nanoparticle Films and Arrays---A Combination of "Bottom-Up" and "Top-Down" Methods
AVS New Mexico Chapter Meeting
Albuquerque, NM 2006

O. Levi, W. Suh, M. M. Lee, J. Zhang*, S. R. J. Brueck, S. Han, and J. S. Harris
Guided Resonance in Photonic Crystal Slabs for Biosensing Applications
CLEO'06
Long Beach, CA 2006

S. Zhang, W. Fan, K. J. Malloy, S. R. J. Brueck, N. C. Panoiu and R. M. Osgood
Optical Negative Index Metamaterials with Improved Performance
CLEO'06
Long Beach, CA 2006

W. Fan, S. Zhang, A. Abdenour, S. Krishna, K. J. Malloy, S. R. J. Brueck, N. C. Panoiu and R. M. Osgood
Nano-Patterned Isotropic Nonlinear Material for Second Harmonic Generation without Phase Matching
CLEO'06
Long Beach, CA 2006

Deying Xia*, D. Li*, Y. Luo*, and S. R. J. Brueck
Lithographically Defined Nanoparticle Patterns on Planar Surfaces,
EIPBN'06
Baltimore, MD 2006

S. R. J. Brueck
Interferometric Lithography and Directed Self-Assembly – Competitors and Complements to NanoImprint Lithography (invited)
NanoImprint Workshop
Charlotte, NC 2006

S. R. J. Brueck, S. Zhang, W. Fan, K. J. Malloy, N.-C. Panoiu and R. M. Osgood
Plasmonics and Metamaterials: Linear and Nonlinear Optical Properties (invited)
International Union of Radio Science (URSI)
Albuquerque, NM 2006

S. R. J. Brueck
Large-Area Metamaterials and Plasmonics using Interferometric Lithography (Invited)
Metamaterials Summer School
Bad Honnef, Germany 2006

Deying Xia and S. R. J. Brueck
Fabrication of Biomimetic Fluidic and Biosensor Structures by Directed Self-Assembly of Colloidal Silica Nanoparticles
MRS Spring Meeting
San Francisco, CA 2007

Gabriel P. Lopez, S. R.J. Brueck, Sang M. Han, Cornelius F. Ivory, Dimiter N. Petsev and Scott S. Sibbett (invited)
Materials Processing Methods and Issues in the Development of Nanofluidic Systems for Biomolecular Analysis.
MRS Spring Meeting
San Francisco, CA 2007

Mangesh T. Bore[1], Aurelio Evangelista[*], Linnea Ista, Steven R.J. Brueck and Gabriel P. Lopez
Chip-Scale Affinity Microcolumn Biosensors for Toxic Agents
MRS Spring Meeting
San Francisco, CA 2007

Y.-J. Oh*, Danny Bottenus[*], D. N Petsev, S. R J Brueck, G. P. Lopez, C. F. Ivory and S. M Han
Study of FET Flow Control of Proteins and pH Changes in Nanochannels Using Scanning Laser Confocal Fluorescence Microscopy and Multiple Internal Reflection Fourier Transform Infrared Spectroscopy
MRS Spring Meeting
San Francisco, CA 2007

A. Neumann*, Y. Kuznetsova* and S.R.J Brueck
Distortion correction in imaging interferometric microscopy at the 2/λ linear systems limit
Focus on Microscopy (FOM'07)
Valencia, Spain 2007

L. Xue*, S. R. J. Brueck and R. Kaspi
CW, High-Power, Single-Longitudinal Mode Operation of an Optically Pumped Mid-IR DFB Laser
CLEO
Baltimore, MD 2007

R. D. R. Bhat, N. C. Panoiu, R. M. Osgood, and S. R. J. Brueck
Enhancing Infrared Photodetection with a Circular Metal Grating
CLEO
Baltimore, MD 2007

Z. Ku* and S. R. J. Brueck
Experimental Comparison of Circular, Elliptical and Rectangular (Fishnet) Negative-Index Metamaterials
QELS
Baltimore, MD 2007

O. Levi, M. M. Lee, J. Zhang, V. Lousse, S. R. J. Brueck, S. Fan, J. S. Harris
Optical Characterization and Sensitivity Evaluation of Guided-Resonances in Photonic Crystal Slabs for Biosensing Applications
CLEO
Baltimore, MD 2007

D. Li*, A. Frauenglass, A. Raub* and S. R. J. Brueck
Fabrication of 22-nm Half Pitch Lines by Single-Exposure, Self-Aligned, Spatial-Frequency Doubling
EIPBN'07
Denver, CO 2007

D. Xia, Z. Ku*, D. Li*, and S. R. J. Brueck
Formation of Hierarchical Nanoparticle Patterns with Colloidal Lithography and Two-Step Self Assembly
EIPBN'07
Denver, CO 2007

D. Xia and S. R. J. Brueck
Anisotropic Wetting Behavior of One-Dimensional Patterns and Application to Fluidic Devices
EIPBN'07
Denver, CO 2007

S. R. J. Brueck
Large-Area Metamaterials by Interferometric Lithography
Joint Conference on Information Science
Salt Lake City, UT 2007

S. R. J. Brueck
A Frequency Space Perspective on Double Patterning
SPIE Photomask
Monterey, CA 2007

S. R. J. Brueck
Large-Area Nanolithography for Materials Research
N. J. Kreidl Memorial Lecture
Rio Grande Materials Research Society
Albuquerque, NM 2007

S. R. J. Brueck (invited)
Large-Area Nanophotonics
Workshop on Frontiers of Electronics
Cozumel, MX 2007

Deying Xia, T. Gamble, S. J. Koch, G. P. Lopez and *S. R. J. Brueck* (invited)
An Integrated Nanofluidic Chip with a 10^7 Linear-Dimension Dynamic Range
Workshop on Frontiers of Electronics
Cozumel, MX 2007

S. R. J. Brueck (invited)
Large-Area Nanophotonics using Interferometric Lithography
Photonics West
San Jose, CA 2008

A. Neumann,* Y. Kuznetsova and S. R. J. Brueck
Structured Illumination for Imaging Interferometric Microscopy
CLEO'08
San Jose, CA 2008

Liang Xue,* S. R. J. Brueck and R. Kaspi
Large Tunability of an Optically Pumped Mid-IR Laser with Chirped Distributed Feedback Grating
CLEO'08
San Jose, CA 2008

Jingyu Zheng,* and S. R. J. Brueck
Saturation of Second Harmonic Generation in Plasmon-Coupled GaAs-Filled Hole Arrays
QELS'08
San Jose, CA 2008

Svyatoslav Smolev* and S. R. J. Brueck
Graded Index Optical Lens using Inhomogeneous Metamaterials
CLEO'08
San Jose, CA 2008

Deying Xia, Thomas Gamble,* Gabriel Lopez and S. R. J. Brueck
Fabrication of Porous Nanochannels using Nanoparticles and Application to the Transport of DNA Molecules
EIPBN'08
Portland, OR 2008

S. R. J. Brueck
Large-Area Linear and Nonlinear Nanophotonics (Invited)
LEOS Annual Meeting
Newport Beach, CA 2008

S. R. J. Brueck
Large-Area Nanophotonics
Workshop on WaveFunction Engineering and Control in Nanostructured materials
Los Alamos, NM 2009

Xiang He*, Deying Xia, Ying-Bing Jiang, Gabriel P. Lopez and S. R. J. Brueck
Tailoring Anisotropic Wetting Properties on One-Dimensional Nanopatterned Surfaces
EIPBN
Marco Island, FL 2009

Alexander Neumann*, Yuliya Kuznetsova and S. R. J. Brueck
Imaging Interferometric Nanoscopy to the Limits of Available Frequency Space
EIPBN
Marco Island, FL 2009

S. R. J. Brueck
Large-Area Linear and Nonlinear Nanophotonics (Invited)
IQEC
Baltimore, MD 2009

R. Prasankumar, Zahyun Ku,* A. A. Gin, P. C. Upadya, S. R. J. Brueck, A. J. Taylor
Ultrafast Optical Wide-Field Microscopy
CLEO
Baltimore, MD 2009

Liang Xue, S. R. J. Brueck and R. Kaspi
A Widely Tunable Chirped-Grating Distributed Feedback Laser for Spectroscopic Applications
CLEO
Baltimore, MD 2009

Yuliya Kuznetsova, Alexander Neumann* and S. R. J. Brueck
Imaging Interferometric Nanoscopy to the Limits of Available Frequency Space
CLEO
Baltimore, MD 2009

K. M. Dani, Zahyun Ku*, P. C. Upadhya, R. P. Prasankumar, S. R. J. Brueck and A. J. Taylor
Sub-Picosecond Optical Switching in the Near-Infrared using Negative Index Metamaterials
IQEC
Baltimore, MD 2009

S. R. J. Brueck
Linear and Nonlinear Properties of Large-Area Nanophotonics (invited)
DOE NSRC Contractors Review
Annapolis, MD 2009

S. R. J. Brueck and S. C. Lee
Epitaxial Growth on Nanoscale Patterned Surfaces (invited)
ICMAT
Singapore 2009

D. Xia, S. R. J. Brueck, Y-M. Chiang and C. C. Wong
Formation of Surface Nanoparticle Patterns with Directed Self-Assembly and Nanolithography
ICMAT
Singapore 2009

D. Xia and S. R. J. Brueck
Fabrication of Porous Nanochannels using Nanoparticles for Transport of DNA Molecules
ICMAT
Singapore 2009

S. R. J. Brueck
Imaging Interferometric Microscopy – Resolution to the Linear Systems Limit (plenary)
EOS'09
Capri, Italy 2009

S. R. J. Brueck
Imaging Interferometric Microscopy – Resolution to the Linear Systems Limit (invited)
LEOS'09
Antalya, Turkey 2009

S. R. J. Brueck
Large-Area Linear and Nonlinear Nanophotonics
WOFE'09
Rincon, Puerto Rico 2009

S. R. J. Brueck
Tunable IR Lasers by Chirped DFB Gratings
WOFE'09
Rincon, Puerto Rico 2009

S. R. J. Brueck
Large Area Linear and Nonlinear Nanophotonics (invited)
PQE'10
Snowbird, UT 2010

A. Neumann*, Y. Kuznetsova and S. R. J. Brueck
Imaging Interferometric Nanoscopy To The Limits Of Available Frequency Space
Focus on Microscopy (FOM)
Shanghai, China 2010

Z. Ku*, K. M. Dani, P. C. Upadhya, R. P. Prasankumar, A. J. Taylor and S. R. J. Brueck
Ultrafast, Dual-Band Optical Switching Device with a Negative-Index Metamaterial
CLEO/QELS'10
San Jose, CA 2010

S. Smolev*, Z. Ku*, S. R. J. Brueck, I. Brener, M. Sinclair, G. Ten-Eyk, W. Langson and L. Basilio
Hybridization of the Negative Index Response by Resonant Coupling to a Dipole Absorber Inside a Metamaterial
CLEO/QELS'10
San Jose, CA 2010

A. Raub* and S. R. J. Brueck
Large Area 3D Photonic Crystals with Embedded Waveguides
EIPBN'10
Anchorage, AK 2010

S. Smolev, Z. Ku, S. R. J. Brueck, I. Brener, M. Sinclair, G. Ten Eyck, W. Langston*and L. Basilio*
Experimental Demonstration of Resonant Coupling to a Dipole Absorber Inside a Metamaterial: Hybridization of the Negative Index Response
EIPBN'10
Anchorage, AK 2010

C-C. Liu, A. Raub*, P. Hakeem*, S. R. J. Brueck and P. Nealey
The Integration of Block Copolymer Directed Assembly with 193 Immersion Lithography
EIPBN'10
Anchorage, AK 2010

S. R. J. Brueck (invited)
Large-Area Linear and Nonlinear Nanophotonics
EIPBN'10
Anchorage, AK 2010

C-C. Lin, P. F. Nealey, T-H. Chang, Z. Ma, A. K. Raub, S. R. J. Brueck, E Han and P. Gopalan,
Integration of block copolymer directed self assembly with 193i lithography toward fabrication of nanowire MOSFETs
SPIE Microlithography
San Jose, CA 2011

S.R.J. Brueck, Z. Ku and S. Smolev
Recent Progress in Fishnet Metamaterials at the University of New Mexico
PIERS
Marrakech, Morocco 2011

S.R.J. Brueck, A. Neumann and Y. Kuznetsova
Imaging Inteferometric Microscopy
PIERS
Marrakech, Morocco 2011

A. Neumann, Y. Kuznetsova and S. R. J. Brueck
Solid Immersion Imaging Interferometric Microscopy to the Limits of Available Frequency Space
Focus on Microscopy, 2011
Konstanz, Germany 2011

Seung Chang Lee, S. Krishna and S. R. J. Brueck
Surface Plasma Wave Enhanced Infrared Detection (invited)
Metamaterials 2011
Barcelona, Spain 2011

Keshav Dani, Zahyun Ku, Prasanth Upadhya, Rohit Prasankumar, S.R.J. Brueck and A.J. Taylor
Ultrafast Pump-Probe Spectroscopy of a Dual-Band Negative Index Metamaterial
Metamaterials 2011
Barcelona, Spain 2011

Xiang He*, Stephen Benoit, R. Kaspi and S.R.J. Brueck
Broadly Tunable Infrared Lasers for Molecular Spectroscopy
Nanoelectronics for Defense and Security (Nano-DDS)
Brooklyn, NY 2011

Yuliya Kuznetsova, Alexander Neumann*, Ed Mendoza and S.R.J. Brueck
DNA Transport in Nanoparticale Porous-Wall Nanotubes (invited)
Nanoelectronics for Defense and Security (Nano-DDS)
Brooklyn, NY 2011

Xiang He*, R. Kaspi and S. R. J. Brueck
Optically pumped type-II mid-IR tunable DFB laser
SPIE Photonics West,
San Francisco, CA 2012

S. C. Lee, A.Chaudhuri*, N. Youngblood*, S. R. J. Brueck,
A. Sharma, D. Telesca and C. Mayberry
III-V Nanowire Devices for Radiation Effect Studies
GOMAC Tech'12
Las Vegas, NV 2012

S. C. Lee, Y. Sharma, S. Krishna, S. R. J. Brueck
Leaky-Mode Effects in InAs Quantum-Dot Infrared Photodetectors Coupled to a Metal Photonic Crystal
CLEO'12
San Jose, CA 2012

C. J. Stark*, T. Detchprohm, C. Wetzel, S. C. Lee and S. R. J. Brueck
Cubic GaInN/GaN Multi-Quantum-Wells for Increased Smart Lighting System Efficiency
CLEO'12
San Jose, CA 2012

Xiang He*, Steven Benoit, S. R. J. Brueck and R. Kaspi
Widely Tunable Optically Pumped Mid-IR DFB Laser
CLEO'12
San Jose, CA 2012

S. C. Lee, C. J. M. Stark*, T. Detchprom, Y. B. Jiang, C. Wetzel, and S. R. J. Brueck,
Cubic InGaN/GaN Multi-Quantum Wells Grown on A (111)-Faceted V-Groove Fabricated into a Si(001) Substrate
ICOMVPE XVI
Busan, Korea 2012

Y. Kuznetsova, A. Neumann* and S.R.J. Brueck
Solid Immersion Imaging Interferometric Nanoscopy to the Limits of Available Frequency Space
15th International Conference on Laser Optics 2012
St. Petersburg, Russia 2012

S.R.J. Brueck, S. C. Lee and S. Krishna
Surface Plasma Wave Enhanced Infrared Detectors
Photonics West
San Francisco, CA 2013

* - student __ - presenter