

Sasan Fathpour Curriculum Vitae

CREOL, The College of Optics and Photonics, University of Central Florida

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Employment

- 2014-Present** Associate Professor, CREOL – The College of Optics and Photonics
University of Central Florida (UCF)
- 2008–2014** Assistant Professor, CREOL – The College of Optics and Photonics, UCF
- 2008–Present** Joint Faculty Appointment at the Department of Electrical and Computer Engineering,
UCF
- 2008–2008** Senior Member Research Staff, Ostendo Technologies Inc., Carlsbad, CA
- 2007–2008** Visiting Assistant Professor, Electrical Engineering Department, University of
California, Los Angeles (UCLA)
- 2005–2007** Postdoctoral Research Fellow, Photonics Laboratory, Electrical Engineering
Department, UCLA; Mentor and Director of the Laboratory: *Prof. Bahram Jalali*
- 2000–2005** Graduate Student Research Assistant, Department of Electrical Engineering and
Computer Science, University of Michigan, Ann Arbor
- 1999–2000** Graduate Student Research Assistant, Department of Electrical and Computer
Engineering, University of British Columbia, Vancouver, Canada
- 1997–1998** R&D Engineer, Pardisan Inc., Isfahan

Education

- 2005** **University of Michigan**
Ph.D. in Electrical Engineering

Dissertation Title: “*High Performance Lasers and Spin-Polarized Light Emitting Diodes with Quantum Dot Active Regions*,” Advisor: *Prof. Pallab Bhattacharya*
- 2000** **University of British Columbia**
M.S. in Electrical and Computer Engineering

Thesis Title: “*Performance Predictions for AlGaIn/GaN Heterojunction Bipolar Transistors*,” Advisor: *Prof. David Pulfrey*
- 1995** **Isfahan University of Technology**
B.S. in Electrical Engineering (Electronics Track)

Sponsored Research Grants

**External Funding: Over \$4,500,000 promised as the Principal Investigator (PI)
(over \$3,000,000 received to date)**

- 2017-2021** ONR grant for “*Integrated Optics for Single-Photon Nonlinear Interactions*,” **\$438,000 (co-PI)**, PI: G. Kanter, Northwestern University
- 2017-2018** NSF grant for “*III-V-to-Si Chip-to-Chip Photonic Interfaces*,” through the Multi-Functional Integrated System Technology (MIST) Center, **\$40,000 (PI)**

- 2015-2019** DARPA DODOS Program for “*Heterogeneously Integrated Optical Synthesizer (HiOS)*,” **\$932,935 (co-PI)**, PI: M. Wu, University of California, Berkeley
- 2015-2018** Department of Energy Phase I & II SBIR grant for “*Advanced QPSK Optical Modulators Using Lithium Niobate Thin Films*,” **\$235,000 (co-PI)**, PI: P. Rabiei, Partow Technologies LLC
- 2012–2017** NSF CAREER Program award for “*Mid-Infrared Photonic Devices and Integrated Circuits on Silicon*,” **\$427,000 (PI)**
- 2016-2017** NASA Phase I SBIR grant for “*Thin Film Lithium Niobate Microring Modulators for Analog Photonics*,” **\$40,000 (co-PI)**, PI: P. Rabiei, Partow Technologies LLC
- 2015-2017** UCF’s Reach for the Stars Award, **\$20,000 (PI)**
- 2013–2016** ONR Young Investigator Program award for “*Hybrid Second-Order Nonlinear Photonic Devices on Silicon*,” **\$580,000 (PI)**
- 2015-2016** Harris Corporation grant for “*Hybrid Lithium Niobate on Silicon Integrated Circuits for RF Photonic Applications*,” **\$50,000 (PI)**
- 2014-2015** UCF’s Office of Research & Commercialization award for “*Silicon Integrated Electronic-Photonic Integrated Circuits for Optically-Coupled Bioelectrodes*,” **\$7,500 (PI)**
- 2014-2015** DURIP award for “*Acquisition of an Advanced Plasma-Enhanced Chemical Deposition System*”, **\$324,043 (PI)**
- 2013-2014** NSF Phase I SBIR grant for “*Advanced Optical Modulators for Telecommunication and Sensing Applications*,” **\$50,000 (co-PI)** , PI: P. Rabiei, Partow Technologies
- 2011–2014** NSF award for “*Silicon Photonic Devices for Optical Delay Line Integrated Circuits*”, **\$348,000 (PI)**
- 2013-2014** NSF MRI award for “*Acquisition of a Hybrid Mask-Aligner/Nanoimprinter Lithography Tool*,” **\$718,376 (PI)**
- 2012–2013** NSF MRI grant for “*Development of a Nonlinear Optical Spectrometer*” **\$494,477 (co-PI)**, PI: E. Van Stryland, UCF
- 2009–2012** NSF award for “*Cladding-Pumped Silicon Raman Amplifiers Integrated with In(Ga)As Quantum Dot Laser Pumps*”, **\$400,000 (PI)**
- 2009–2010** Florida Space Grant Consortium (FSGC) grant for “*Plasmonic-Enhanced Two-Photon Photovoltaic Cells for Space Applications*,” **\$37,000 (PI)**

Honors, Awards and Research Recognitions

- 2017** Elected Fellow of OSA, The Optical Society
- 2017** Topical review paper, titled “silicon photonics beyond silicon-on-insulator,” chosen as *Journal of Optics*’ paper of the week
- 2017** UCF Research Incentive Award (RIA)
- 2017** Excellence in Undergraduate Teaching Award, College of Optics and Photonics
- 2017** Coauthored paper titled “Silicon Photonics” republished among the most impactful papers from third of a century history of the *IEEE Journal of Lightwave Technology*
- 2015** UCF Reach for the Stars Award
- 2014** Advised Ph.D. student, Jeff Chiles, wins the College Student of the Year Award
- 2014** Coauthored paper, titled “Silicon Photonics,” became among top 20 cited papers in the history of the *IEEE Journal of Lightwave Technology*
- 2013** Office of Naval Research (ONR) Young Investigator Award
- 2013** UCF Teaching Incentive Program (TIP) Award
- 2013** Excellence in Graduate Teaching Award, College of Optics and Photonics
- 2013** Elevated to Senior Member the *Institute of Electrical and Electronics Engineers (IEEE)*
- 2012** Elevated to Senior Member of *OSA, The Optical Society*

2012	National Science Foundation (NSF) CAREER Award
2011	Elevated to Senior Member of the <i>International Society for Optics and Photonics (SPIE)</i>
2007	UCLA Chancellor's Award for Postdoctoral Research
2007	Featured in the 62nd Edition of Marquis Who's Who in America
2006	Worldwide Press Coverage of Research in Silicon Photonics (List Appended)
2000	International Graduate Student Fellowship, University of Michigan
1991–1995	Honors Fellowship for Outstanding Undergraduate Student, Isfahan Univ. Tech.
1991	Ranked 14 in the "National Entrance Exam for Undergraduate Programs," among more than 300,000 applicants nationwide
1990	Selected in the Entrance Exam for the National Physics Olympics Team
1989	First rank of Isfahan Province High School Scientific Competitions

Research Highlights (Enlisted by Employment Appointments)

CREOL, The College of Optics and Photonics, UCF (2008-Present)

Research Highlights

- Lithium niobate on silicon photonics**
(Funded by the ONR Young Investigator and the DARPA DOSOS Programs, as well as DOE, NASA and NSF SBIR Programs)
 The objective is to develop a novel lithium-niobate-on-silicon platform for compact (submicron waveguide), low-power Mach-Zehnder modulators and ultracompact microring resonators and modulators, as well as for second-order integrated nonlinear optics and quantum optics applications.
- Unconventional integrated photonic platforms**
(Funded by the NSF CAREER Program)
 The objective is to develop novel optical waveguide platforms with exceptional or unprecedented properties and performance. Demonstrated examples are *T*-Guides with extremely broad single-polarization behavior and topographically-anisotropic photonics with extremely broadband polarization selectivity.
- Chalcogenide glass on silicon photonics**
(Funded by the DARPA DOSOS Program)
 The objective is to develop novel highly nonlinear chalcogenide-glass-on-silicon waveguides and microring resonators for extremely broad supercontinuum generation and other nonlinear applications.
- Mid-infrared silicon photonics**
(Funded by the NSF CAREER Program)
 The objective is to expand the realm of silicon photonics beyond the well-established near-infrared wavelengths and into the mid-infrared (3 – 5 μm). Novel passive and active (nonlinear) monolithically integratable photonic devices and circuits targeting the needs of mid-infrared optics are being demonstrated.
- Integrated optical delay lines and radio-frequency (RF) photonics on silicon**
(Funded by NSF)
 The objective of this program is the demonstration of electronically-tuned analog optical delay lines, low-loss digital delay lines, optical amplifiers enhanced for high gain and monolithic integration, and switches designed for high interchannel isolation on silicon.
- Hybrid integration of GaAs and silicon photonic chips with subwavelength plasmonic apertures on silicon**

(Funded by NSF and FSGC)

The objective of the program is to pave the path for seamless integration of III-V and silicon devices on the same chip without bonding, but rather epitaxial growth on silicon substrates. Also, subwavelength plasmonic apertures on silicon are envisioned to be used for coupling in and out of silicon waveguides.

Press Coverage of Research by Professional Organizations

2017: Research and commercialization efforts featured in [Florida High Tech Corridor magazine](#)

2014: Research on mid-infrared integrated photonics highlighted in [Opli Magazine](#).

2013: Research on optical delay lines on silicon highlighted in [Advances in Engineering](#).

2013: Research on lithium-niobate-on-silicon photonics highlighted in [Laser Focus World](#), [Photonics Online](#) and [Opli Magazine](#).

2013: “Photonic Researchers Among Young Investigator Recipients” by [photonics.com](#).

2011: The journal paper “Electronically Tunable Silicon Photonic Delay Lines,” highlighted in the [Nature Photonics](#) Journal.

2009: Featured article “Green Silicon Photonics” made it to the cover of the *Optics and Photonics News* published by *OSA, The Optical Society*.

2009: Invited conference paper/presentation on “Green Integrated Photonics” at the *Frontiers in Optics* conference highlighted by [photonics.com](#).

Press Coverage of Research by the Public Media

2014: *UCF Today*, “[CREOL Researchers Develop Key Photonic Device at Difficult Wavelength](#)”

2013: *Orlando Business Journal*, “[UCF researchers develop next-generation photonics platform](#)”

2013: *UCF Today*, “[Researchers Develop Next-Generation Platform for Integrated Photonics](#)”

2013: *Orlando Business Journal*, “[Two UCF researchers awarded \\$1.2M in grants](#)”

2013: *UCF Today*, “[2 UCF Researchers Earn Combined \\$1.2 Million in Navy Grants](#)”

2012: *Orlando Business Journal*, “[UCF Photonics Researcher Wins NSF Award](#)”

2012: *UCF Today*, “[Photonics Researcher Receives NSF Award](#)”

Other Creative Activities

2014-15: Technical architect and leader of the concept paper and full proposal that was selected as one of three finalists for the DoD \$110M Integrated-Photonics Institute for Manufacturing Innovation (IMI).

2014: Co-PI of *Engineering Research Center for Petabit data Transfer Technologies (PT2)*, proposed to NSF and down-selected for site visit (PI: Prof. Milton Feng, University of Illinois, Urbana Champaign).

2013: Cofounder of a startup company, Partow Technologies LLC, which has received 3 Phase I SBIR grants, funded by NSF, the Department of Energy (DOE) and the National Aeronautics and Space Administration (NASA). The DOE grant is under its Phase II contract.

Ostendo Technologies Inc., Carlsbad, California (2008)

- **Vertical-waveguide nitride-based green and blue light-emitting diodes**

This work played a key role for the company to generate \$5,000,000 in DARPA and venture funding.

University of California, Los Angeles (2005-2008)

Worldwide press coverage with more than 30 items (See Attached List)

- **Demonstration of energy harvesting in silicon photonic chips with worldwide press coverage**

High power dissipation is the central problem in integration of silicon photonic devices with CMOS electronics. The breakthrough demonstrated that not only high electrical power dissipation can be avoided in silicon photonic devices (optical amplifiers, wavelength converters and optical modulators) but electrical power can be generated in the process.

- **Demonstration of electronic tuning of optical properties (birefringence) of silicon**
Using the stress induced by an integrated piezoelectric transducer on top of a silicon waveguide, the birefringence of the devices was tuned in order to achieve phase matching in third-order nonlinear devices.

University of Michigan (2000-2005)

- **First demonstration of temperature invariant operation in any semiconductor laser**
 - Achieved infinite characteristics temperature ($T_0 = \infty$) in p -doped 1.3 μm InAs/GaAs self-assembled quantum dot lasers
 - Development of a theory that attributed the $T_0 = \infty$ experimental result to the role of Auger recombination.
- **Report of highest modulation bandwidth (~25 GHz) in any quantum dot laser**
 - Unbeaten to date, the high-speed lasers were demonstrated by utilizing p -doping and tunneling injection.
 - Report of superior dynamic performance (zero linewidth enhancement factor and negligible chirp) and suppressed filamentation in the same lasers.
- **Demonstration of quantum dot DFB lasers**
 - Gain-coupled distributed feedback with 30 dB side-mode suppression ratio and 4 \AA lasing mode linewidth.
- **First experimental report of modulation bandwidth in p -doped quantum dot lasers and comparison with theory**
 - The contradicting arguments on the impact of p -type doping on the modulation properties of the lasers were settled.
- **Room-temperature spintronic materials**
 - Report of diluted magnetic In(Mn)As/GaAs quantum dots with Curie temperatures above 300K with potential applications in room-temperature spintronic memory devices and light sources.
- **Spin-polarized LEDs**
 - Demonstration of spin-polarized InGaAs/GaAs quantum dot LEDs with an output polarization efficiency of 30% and record-high temperature operation of 95 K.

University of British Columbia (1999-2000)

- **Nitride transistors:** Performance prediction for nitride-based (AlGaIn/GaN) heterojunction bipolar transistors (HBTs) and theoretical studies on the effect of quasi-ballistic transport in the frequency response of nanoscale (< 40 nm) HBTs.

Technical Expertise

Photonic Device Fabrication

- Processing silicon photonic devices and circuits
- Processing state-of-the-art III–V (GaAs and InP-based) single-mode Fabry-Perot and DFB lasers, VCSELs and other optoelectronic and spintronic devices
- Processing gallium nitride-based LEDs
- Major employed processes include photolithography, dry etching (RIE), wet chemical etching, thin film deposition, plasma-enhanced chemical vapor deposition (PECVD), oxidation and doping furnaces, rapid thermal annealing, wire bonding, and substrate thinning and polishing.

Photonic Material and Device Characterization

- Characterization of nonlinear optical effects, e.g., Raman and Kerr, in photonic devices; DC characteristics of semiconductor lasers; Modulation response, linewidth enhancement factor, chirp and other dynamic characterizations of high-speed semiconductor lasers; Characterization of optical waveguides; Cryogenic magneto-optical measurements at liquid helium temperature; Superconducting quantum interference device (SQUID) magnetometry; Scanning electron microscopy (SEM); Photoluminescence (PL); Polarization-dependent electroluminescence (EL); Optical spectroscopy and reflectometry; Hall and magnetoresistance measurements.

Epitaxial Growth of Crystalline Materials

- Four years of experience in molecular beam epitaxial (MBE) growth:
 - MBE growth of self-organized quantum dots and InGaAs/AlGaAs/GaAs heterostructures for lasers and other electronic and optoelectronic devices
 - MBE growth of (III,Mn)-V diluted magnetic semiconductor nanostructures for spintronics
 - General maintenance and repair of MBE and other ultra-high vacuum systems

Physical Modeling and Device Design

- Developing codes for modeling physical properties of confined heterostructures and analysis of transistors and optoelectronic devices; Optical mode calculations and design of epitaxial heterostructures for optical microcavities, waveguides and photonic devices; Design of edge-emitting lasers and VCSELs; Various software packages and computer languages such as MATLAB, BeamProp, ATLAS, MEDICI, DAVINCI, ATHENA, COMSOL, ANSYS, OrCAD, HSPICE, Labview and TMS family DSP processors assembly language.

Teaching Experience

2017	Developer and Instructor of OSE 6532, “Semiconductor Lasers” (UCF)
2015–2017	Developer and Instructor of OSE 6421, “Integrated Photonics” (UCF)
2014–2017	Developer and Instructor of OSE 4470, “Fiber-Optic Communications” (UCF)
2014	Instructor of OSE 3052L, “Introduction to Photonics Laboratory” (UCF)
2013	Developer and Instructor of the inaugural course of UCF’s Photonic Science and Engineering B.S. Program, OSE 3052, “Introduction to Photonics” (UCF)
2009–2013	Developer and Instructor of OSE 6938S, “Integrated Photonic Devices” (UCF)
2012	Redeveloper and Instructor of EEL 4440, “Optical Engineering” (UCF)
2011–12	Developer and Instructor of EEL 4932, “Optical Fiber Communication Systems” (UCF)
2009–10	Instructor of OSE 5312, “Light-Matter Interaction” (UCF)
2007	Instructor of EE 274, “Fiber Optic System Design” (UCLA)
2006	Lectured some sessions of EE 122L, “Semiconductor Devices Laboratory” (UCLA)
2004	Lectured some sessions of EECS 529, “Semiconductor Lasers and LEDs” (University of Michigan)
2002	Lab Tutor and Teaching Assistant of EECS 429, “Semiconductor Optoelectronic Devices” (University of Michigan)
1999–2000	Lab Tutor and Teaching Assistant for “Project Integrated Program” of sophomore students of Electrical Engineering (University of British Columbia)
1999	Teaching Assistant of EECE 457, “RF Electronics” (University of British Columbia)

Course Development

Developed and instructed a new graduate course (OSE 6532, Semiconductor Lasers)

The course complements the OSE graduate courses on 'fundamentals of optoelectronic devices', 'integrated photonics' and 'optical communication systems' to deepen students' education in photonic engineering. The course's goal is elucidating the key principles underlying the analysis and design of semiconductor lasers, with an emphasis on the engineering and practical aspects of them. The students should attain basic understanding and design capability for advanced semiconductor lasers, at the end of the course.

Redeveloped and instructed a new graduate course (OSE 6421, Integrated Photonics)

The course is the permanent version of the below special topic course, "Integrated Photonic Devices" and developed by myself, required for the MS Photonics Track. Added topics include microring resonators, photonic filters and delay lines, DFB lasers, VCSELs, and dynamic properties of semiconductor lasers and advanced modeling of electrooptic modulators.

Developed and instructed a new graduate course (OSE 6938S, Integrated Photonic Devices)

The course's goal is elucidating the key principles underlying the analysis and design of integrated photonic devices, with an emphasis on the engineering and practical aspects of them. The students should be able to understand and design integrated photonic devices and circuits at the end of the course. The course will also introduce advanced research topics currently pursued in the field.

Developed and instructed a new undergraduate course (OSE 4470/EEL 4932, Optical Fiber Communication Systems)

This course is an introduction to the principles of optical fiber communication systems. The course covers three topics: (1) The optical fiber as a transmission channel; (2) Optoelectronic devices used in transmitters, receivers, and multiplexers; (3) Design of the overall communication system and assessment of its performance. In part 1, step-index and graded-index multimode and single-mode optical fibers are described and their attenuation and dispersion characteristics are determined. The transfer function of the fiber system is determined. Part 2 introduces the basic principles of interaction of light with semiconductor materials, including absorption and electroluminescence. Light emitting diodes, laser diodes, and photodiodes are introduced as the basic components of optical transmitters and receivers. Semiconductor and fiber optical amplifiers are also introduced. Part 3 deals with the design of digital fiber communication systems, including derivation of the bit-error rates for attenuation- and dispersion-limited systems and determination of the maximum data rates possible for a given length. Introductions to wavelength-division multiplexing (WDM) and optical fiber networks are also provided.

Redeveloped and instructed the first undergraduate course of CREOL's BS Degree in Photonic Science and Engineering (OSE 3052, Introduction to Photonics)

This course introduces the basic descriptions of light using rays, waves, and electro-magnetic fields. It introduces the phenomena of optical path length, refractive index, reflection, refraction, interference, diffraction, and polarization. It engages these fundamental properties to present optical engineering applications in imaging, signal processing, sensing, communications, and displays. The fundamental property of spatial light confinement and propagation in optical fiber waveguides is described and compared with transmission via RF transmission lines. Impact of optical carrier versus RF carrier for wideband signal transmission and processing is elaborated. The concept of the photon is introduced and processes of interaction of light with matter for the generation and detection of light are covered with basic designs for LED, Laser, photodetector, and optical amplifier. Basic characteristics and types of lasers and some of their engineering applications are discussed. Some experimental demonstrations in the use of optical components to demonstrate various optical effects are provided.

Student Advising and Postdoctoral Mentoring

Postdoctoral Research Associates: Saeed Khan (2016-Present), Seyfollah Toroghi (2015-2016), Payam Rabiei (2012-2014) and Olena Tirpak (2008-2009) (one of whom is Underrepresented Minority).

Graduated Ph.D. Students

Jeff Chiles, Ph.D. in Optics, August 2016

Dissertation Title: "Hybrid Integrated Photonic Platforms and Devices"

Jichi Ma, Ph.D. in Optics, June 2014

Dissertation Title: "Nonlinear Integrated Photonics on Silicon and Gallium Arsenide Substrates"

Saeed Khan, Ph.D. in Electrical Engineering, August 2013

Dissertation Title: "Silicon Photonic Devices for Optical Delay Lines and Mid-Infrared Applications"

Graduated Master's Students: Chris Fisher (2017), Jeff Chiles (2016), Amin Baghban (2012), Ernesto Abruna (2011, Hispanic Minority), and Saeed Khan (2010) (one of whom is Underrepresented Minority).

Current Graduate Researchers (Ph.D. and M.S. Students): Ashutosh Rao, Marcin Malinowski, Tracy Sjaardema, Amirmahdi Honarodoost, Guillermo F. C. Gonzalez, Kamal Khalil, and Chih-Hao Li (two of whom are Underrepresented Minority).

Undergraduate Researcher (Research Experiences for Undergraduates Programs):

Anthony Riggins, Melisa Napoles, Jordan Planillo, Christophe Gombaud and Charlie Molthrop (two of whom are Underrepresented Minority).

Other Educational Activities

- Served on Ph.D. Dissertation or M.S. Thesis Committees of students of other advisors: Andri Mahendra (University of Sydney, 2017), Weibin Zhu (2017), Pedro Figueiredo (2017), Qitian Ru (2016), Javed Rouf Talukder (2016), Mingxin Li (2016), Xu Yang (2016), Hossein Hodaei (2015), Masimo Villinger (2015), Sushrut Modak (2014), Yu Zhang (2013), Edris Sarailou (2013), Hooman Banaei (2013), Mark Ramme (2012), Yu Zhang (2012), Guowei Zhao (2011) and Pradeep Srinivasan (2009).
- Served on student award committees:
 - CREOL Student of the Year (2017, 2013, 2012, and 2009)
 - University of Michigan's Electrical Engineering Graduate Students Competition (2016)
 - The student poster competition during CREOL's Affiliate Day (2009 and 2010, 2013)
 - The student poster completion during UCF's NanoFlorida (2009)
- Served on CREOL's Ph.D. Qualifying Exam Committee (January 2012, August 2011 and January 2011)
- Served on the Senior Design Project Committee:
 - Luke Ausley, Joshua Moyerman, Andrew Smith (2014)
 - Bernadeu Charles, Matt Erdelac, Erik Ferreira and Armin Sadri (2013)
 - Nicholas Bauer, Shane Theobald, Ricardo Rodriguez, David Morrow II (2011)
 - Nathan Schroeder, David Gardner, Brian Kelly and Dian Escobar-Pazo (2011)
 -

College and University Committees

2012–Present	University Undergraduate Policy and Curriculum Committee
2014–2015	College Teaching Incentive Program (TIP) Selection Committee
2012–2013	University Master Planning Commission

2013–Present	Undergraduate Photonic Science and Engineering Joint Committee
2011–Present	Graduate Curriculum Committee
2011–Present	Undergraduate Curriculum Committee
2008–2011	Student Recruiting Committee
2011–2015	Faculty Search Committees
2010–2012	Qualifying Exam Committee
2009–2014	Website Committee
2009–Present	Cleanroom Committee

Professional Society Memberships

Fellow of OSA, The Optical Society

Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) Photonics Society

Senior Member of the International Society for Optical Engineering (SPIE)

Synergic Activities

Book Editor: S. Fathpour and B. Jalali, *Silicon Photonics for Telecommunications and Biomedicine*, CRC Press (Taylor & Francis Books, Inc.), 2012

Journal Editor: Guest Editor of SPIE's *Journal of Nanophotonics* Special Issue on *Nanoplasmonic*, 2014-2015

Professional Organization Services

Conference and Journal Leadership:

- **2017:** Member of the Optoelectronic Devices Technical Committee of the *IEEE Electron Devices Society (EDS)*
- **2017:** Technical Program Committee Member, *IEEE International Conference on Electron Devices and Solid-State Circuits (EDSSC)*
- **2017:** Technical Program Committee Member, "Integrated Photonics for the Mid-Infrared (IPMI)," *IEEE Photonics Society Summer Topicals Meeting Series 2017*, San Juan, Puerto Rico
- **2016–18:** Technical Program Committee Member, "Components, Integration, Interconnects and Signal Processing (S&I9)," *Conference on Lasers and Electro-Optics (CLEO) 2016 & 2017* by OSA, San Jose, CA
- **2016:** Technical Program Committee Member, "Integrated Photonics (FiO5)" *Frontiers in Optics Conference 2016* by OSA, Rochester, NY
- **2014–2016:** Chair of Short Courses at *CLEO Conference*
- **2015:** Symposium Co-Chair, "Emerging Materials and Devices for on-chip Optoelectronics," *MRS Fall Meeting 2015*, Boston, MA
- **2014–2015:** Guest Editor of SPIE's *Journal of Nanophotonics* Special Issue on *Nanoplasmonics*
- **2014:** Technical Program Committee Member, "Integrated and Silicon Photonics," *OSA Latin America Optics and Photonics Conference (LAOP)*, Cancun, Mexico
- **2012–2014:** Vice-Chair of the Short Courses at *CLEO Conference*

Short Course Lecturer:

- **2014:** *LAOP Conference*, Short Course on *Silicon Photonics*

- **2014:** *CREOL Affiliates' Day Symposium, Short Course on Silicon Photonics*
- **2011:** *CLEO Conference, Short Course on Silicon Photonics*

Conference Session Chairmanship: CLEO (2016-17), LAOP (2014), CLEO (2012), OSA Frontiers in Optics (2009), IEEE Winter Topical Meeting (2011), SPIE Photonics West (2007)

Journal Reviewer: Nature Photonics, Optica, Optics Letters, Optics Express, IEEE/OSA Journal of Lightwave Technology, IEEE Journal of Selected Topics in Quantum Electronics, IEEE Photonics Technology Letters, IEEE Photonics Journal, IEEE Transactions on Nanotechnology, IEEE Transactions on Microwave Theory and Techniques, Applied Physics Letters (APL), APL Photonics, Science Advances, Photonics Research, Scientific Reports, ACS Photonics, Optics Communications, Chinese Optics Letters, Optical Materials, Optical and Quantum Electronics.

External Services

Federal Funding Agencies Proposal Reviewer

- Served five times on NSF panels: Electronics, Photonics, and Magnetic Devices (EPMD) subdivision (June 2014, May 2012, November 2011, February 2011, and February 2009)
- Army Research Laboratory
- Defense Threat Reduction Agency

International Funding Agencies Proposal Reviewer

- Industrial Research Fund of the Ghent University Association, Belgium
- European Research Council
- Natural Sciences and Engineering Research Council of Canada
- Canada Foundation for Innovation
- Government of Alberta, Canada
- Industrial Research Fund of the Ghent University Association, Belgium
- Research Grants Council, Hong Kong

K-12 Educational Outreach Activities

- Served as a judge in the Seminole County Science Fair of 2012
- Supervising high-school interns in research laboratories:
 - Harsh Kapadia (2014-Present), Shane Visram (2011-2013), Ravi Jindal (2010-2011, who won the third prize in the Seminole County Science Fair based on the work he did at CREOL)

Invited Seminar and Workshop Presentations

- [1] S. Fathpour, "Novel Heterogeneous Integrated Photonic Platforms on Silicon," The National Institute of Standards and Technology (NIST), Boulder, CO, January 2017.
- [2] S. Fathpour, "Novel Heterogeneous Integrated Photonic Platforms on Silicon," Lockheed Martin Senior Fellows Conference, Orlando, FL, September 2014.
- [3] S. Fathpour, "Novel Heterogeneous Integrated Photonic Platforms on Silicon," Proposal DODOS DARPA Proposer's Day Workshop, Arlington, VA, April 2014.
- [4] S. Fathpour, "Novel Heterogeneous Integrated Photonic Platforms on Silicon," Workshop for NSF Engineering Research Center Proposal, Orlando, FL, March 2014.
- [5] S. Fathpour, "Novel Heterogeneous Integrated Photonic Platforms on Silicon," CREOL Affiliates' Day Symposium, Orlando, FL, March 2014.
- [6] S. Fathpour, "Novel Heterogeneous Integrated Photonic Platforms on Silicon," Optoelectronic Research Center, University of Southampton, UK, February 2014.
- [7] S. Fathpour, "Silicon Photonics: A Versatile Technology for Visible to Mid-Infrared Wavelengths," Department of Mechanical and Materials Engineering, Florida International University, October 2012
- [8] S. Fathpour, "Green Silicon Photonics," ECE Friday Seminars, University of Illinois, March 2011.
- [9] S. Fathpour, "Green Integrated Photonics," SPIE Seminars, University of California, Berkeley, February 2010.
- [10] S. Fathpour, "Green Silicon Photonics," Frontiers in Semiconductors Symposium, University of Michigan, Ann Arbor, MI, December 2009.
- [11] S. Fathpour, "Has Silicon Photonics Come of Age?" Department of Electrical and Systems Engineering, University of Pennsylvania, Philadelphia, PA, April 2008.
- [12] S. Fathpour, "Energy Harvesting in Silicon Photonics," CREOL, The College of Optics and Photonics, University of Central Florida, Orlando, FL, March 2008.
- [13] S. Fathpour, "Energy Harvesting in Silicon Photonics," Department of Electrical and Computer Engineering, University of Utah, Salt Lake City, UT, March 2008.
- [14] S. Fathpour, "Energy Harvesting in Silicon Photonics," Department of Electrical, Computer, and Energy Engineering, University of Colorado, Boulder, CO, March 2008.
- [15] S. Fathpour, "Energy Harvesting in Silicon Photonics," Center for High Technology Materials, University of New Mexico, Albuquerque, NM, January 2008.
- [16] S. Fathpour, "Energy Harvesting in Silicon Photonics," Department of Electrical and Computer Engineering, University of Maryland, College Park, MD, June 2007.
- [17] S. Fathpour, "Energy Harvesting in Silicon Photonics," Department of Electrical and Computer Engineering, Rutgers University, Piscataway, NJ, April 2007.
- [18] S. Fathpour, "Spintronic Light Sources," IEEE/UCF Workshop on Quantum Processing, Orlando, FL, March 2009.
- [19] S. Fathpour and P. Bhattacharya, "High Performance Quantum Dot Lasers," Photonics Technology Access Program Quantum Dots Workshop, Albuquerque, NM, September 2004.
- [20] S. Fathpour and D. L. Pulfrey, "Evaluation of AlGaIn-GaN HBTs," WOCSDICE 2000, 24th Workshop on Compound Semiconductor Devices and Integrated Circuits, Aegean Sea, Greece, pp. VIII-15, 2000.

Press Coverage of Research

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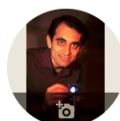
Publication Numbers and Citations

Author or coauthor of about 150 published or accepted works:

- **1** edited book
- **6** book chapters
- **4** pending patents
- **57** peer-reviewed journal papers, including **9** invited articles
- **81** peer-reviewed conference papers, including **20** invited conference papers/talks

According to the **Web of Science (12/06/2017)**: **1900** citations, ***h*-index of 19** and average citation of **19.19** per publication

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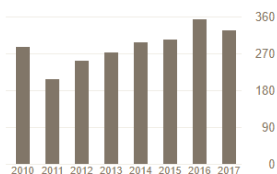
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- [48] D. L. Pulfrey, S. Fathpour, A. St. Denis, M. Vaidyanathan, W. A. Hagley, and R. K. Surridge, "Application of the Traditional Compact Expressions for Estimating the Regional Signal-Delay Times of Heterojunction Bipolar Transistors," *Journal of Vacuum Science and Technology A*, vol. 18, pp. 775–779, March/April 2000.

Invited Conference Papers with Talks

- [1] S. Fathpour, "Novel Heterogeneous Photonic Integrated Circuits on Silicon," *3rd IPC International Conference*, Brussels, Belgium, April 2018, accepted (INVITED).
 - [2] S. Fathpour and J. Chiles, "All-Silicon Integrated Photonic Platforms," *IEEE International Conference on Electron Devices and Solid-State Circuits (EDSSC) 2017*, Hsinchu, Taiwan, October 2017 (INVITED).
 - [3] A. Rao, A. Patil, M. Malinowski, J. Chiles, S. Khan, A. Honardoost, S. Toroghi, G. F. Camacho-Gonzalez, P. Rabiei, and S. Fathpour, "Electro-Optic and Second-Order Nonlinear Effects in Thin Film Lithium Niobate on Silicon," *IEEE Photonics Society Summer Topicals Meeting Series 2017*, San Juan, Puerto Rico, July 2017 (INVITED).
 - [4] S. Fathpour, A. Rao, J. Chiles, S. Khan, P. Rabiei, S. Toroghi, M. Malinowski, A. Honardoost, and G. F. Camacho-Gonzalez, "Heterogeneous Integration of Lithium Niobate on Silicon Substrates for Electrooptic Modulation and Second-Harmonic Generation," *European Materials Research Society (EMRS) Spring Meeting*, Strasbourg, France, May 2017 (INVITED).
 - [5] S. Fathpour, A. Rao, P. Rabiei, A. Patil, R. DeSalvo, A. Paoella, J. Chiles, and M. Malinowski, "Heterogeneous Lithium Niobate Microring and Modulator Integration on Silicon," *2016 IEEE International Topical Meeting on Microwave Photonics (MWP)*, Long Beach, CA, October-November 2016 (INVITED).
 - [6] S. Fathpour, A. Rao, P. Rabiei, A. Patil, R. DeSalvo, A. Paoella, J. Chiles, and M. Malinowski, "Heterogeneous Integration of Compact Lithium Niobate Microring and Mach-Zehnder Modulator on Silicon," *2016 IEEE Photonics Conference (IPC)*, Waikoloa, HI, October 2016 (INVITED).
 - [7] S. Fathpour, "Silicon Photonics beyond the Silicon-on-Insulator Platform," *Frontiers in Optics, OSA Annual Meeting*, San Jose, CA, October 2015 (INVITED).
 - [8] S. Fathpour, A. Rao, P. Rabiei, A. Patil, S. Novak, K. Richardson, J. Chiles, and M. Malinowski, "Heterogeneous Lithium Niobate Photonics on Silicon Substrates," *European Materials Research Society (EMRS) Fall Meeting*, Warsaw, Poland, September 2015 (INVITED).
 - [9] S. Fathpour, "Hybrid Silicon Photonic Platforms for Near- and Mid-Infrared Wavelengths," OSA LAOP Conference, Paper LTu3A.1, Cancun, Mexico, November 2014 (TUTORIAL).
 - [10] P. Rabiei, J. Ma, J. Chiles, S. Khan, and S. Fathpour, "Lithium Niobate Photonics on Silicon Substrates," *IEEE Photonics Conference*, Paper TuC3.1, San Diego, CA, October 2014 (INVITED).
 - [11] S. M. Kuebler, J. L. Digaum, J. Pazos, J. Chiles, G. Padilla, A. Tatulian, R. C. Rumpf and S. Fathpour, "Tight control of light beams in photonic crystals with spatially-variant lattice orientation," *Optics/Laser Science*, Tucson, AZ, October 2014 (INVITED).
 - [12] S. Fathpour, "Green Integrated Photonics," *Frontiers in Optics, OSA Annual Meeting*, San Jose, CA, October 2009 (INVITED).
- (Highlighted at Photonics.com)**
- [13] B. Jalali, S. Fathpour, and K. K. Tsia, "Energy Harvesting in Silicon Photonics," *Conference on Lasers and Electro-Optics (IEEE CLEO 2007)*, Paper #356, Baltimore, MD, May 2007 (INVITED).
 - [14] R. Claps, D. Dimitropoulos, V. Raghunathan, S. Fathpour, B. Jusserand, and B. Jalali, "Si/Ge Platform for Lasers, Amplifiers, and Nonlinear Optical Devices Based on the Raman Effect," *SPIE Photonics West*, San Jose, CA, January 2007 (INVITED).
 - [15] B. Jalali, S. Fathpour, and K. K. Tsia, "Energy Harvesting in Silicon Photonic Devices," *IEEE LEOS Annual Meeting 2006*, pp. 382–83, Montreal, Canada, November 2006 (INVITED).
 - [16] P. Bhattacharya, Z. Mi, J. Yang, and S. Fathpour, "High Performance 1.3 μm Quantum Dot Lasers on GaAs and Silicon," *Photonics West*, Proc. SPIE, vol. 6133, pp. 61330U1–U9, San Jose, CA, January 2006 (INVITED).

- [17] B. Jalali, S. Fathpour, O. Boyraz, D. Dimitropoulos, and V. Raghunathan, "Light Generation in Silicon," *JSAP-MicroOptics Conference*, E1, pp. 1–4, Tokyo, Japan, October 2005 (INVITED).
- [18] P. Bhattacharya, S. Fathpour, and Z. Mi, "Dynamic Characteristics of Quantum Lasers," *17th Laser and Electro-Optics Society Annual Meeting Conference Proceedings (IEEE LEOS 2004)*, Rio Grande, Puerto Rico, November 2004 (INVITED).
- [19] P. Bhattacharya, S. Fathpour, Z. Mi, and S. Chakrabarti, A. R. Kovsh, S. S. Mikhlin, I. L. Krestnikov, A. V. Kozhukhov, and N. N. Ledentsov, "High Performance Quantum Dot Lasers," *UKC-Nano2004 Proceedings*, Research Triangle Park, NC, August 2004 (INVITED).
- [20] P. Bhattacharya, S. Fathpour, S. Chakrabarti, M. Holub, and S. Ghosh, "Application of Diluted Magnetic Semiconductors and Quantum Dots to Spin Polarized Light Sources," *Materials Research Society Symposium Proceeding*, vol. 794, T8.1.1, Boston, MA, November-December 2004 (INVITED).

Peer-Reviewed Contributed Conference Papers

- [1] T. Sjaardema, J. Chiles, A. Rao, and S. Fathpour, "Integrated Polarization-Selective Microring Resonators and Beam Taps via Topographically Anisotropic Photonics," *2017 IEEE Photonics Conference (IPC)*, Orlando, FL, October 2017.
- [2] J. Chiles, X. Gai, B. Luther-Davies and S. Fathpour, "Mid-infrared Supercontinuum Generation in High-Contrast, Fusion-Bonded Silicon Membrane Waveguides," *2017 IEEE Photonics Conference (IPC)*, Orlando, FL, October 2017.
- [3] A. Honardoost, S. Khan, G. F. Camacho Gonzalez, J.-E. Tremblay, A. Yadav, K. A. Richardson, M. C. Wu, and S. Fathpour, "Heterogeneous Integration of Thin-Film Lithium Niobate and Chalcogenide Waveguides on Silicon," *2017 IEEE Photonics Conference (IPC)*, Orlando, FL, October 2017.
- [4] M. Malinowski, J.-E. Tremblay, G. F. C. Gonzalez, A. Rao, S. Khan, A. Yadav, K. A. Richardson, P. Delfyett, M. C. Wu and S. Fathpour, "Amplified Octave-Spanning Supercontinuum Chalcogenide Waveguides for Second-Harmonic Generation," *2017 IEEE Photonics Conference (IPC)*, Orlando, FL, October 2017.
- [5] A. Honardoost, A. Rao, and S. Fathpour, "High-Speed Modeling of Thin-Film Lithium-Niobate-on-Silicon Electrooptic Modulators," *IEEE Photonics Society Summer Topicals Meeting Series 2017*, San Juan, Puerto Rico, July 2017.
- [6] J. Chiles, T. Sjaardema, A. Rao, and S. Fathpour, "Integrated Polarization Beam-Splitter with 116 THz Bandwidth via Topographically Anisotropic Photonics," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2017)*, San Jose, CA, May 2017.
- [7] J.-E. Tremblay, Y.-H. Lin, P.-K. Hsu, M. Malinowski, S. Novak, P. Qiao, C. Chang-Hasnain, K. Richardson, S. Fathpour, and M. C. Wu, "Large Bandwidth Silicon Nitride Spot-Size Converter for Efficient Supercontinuum Coupling to Chalcogenide Waveguide," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2017)*, San Jose, CA, May 2017.
- [8] A. Rao, A. Patil, P. Rabiei, A. Honardoost, R. DeSalvo, A. Paoella, and S. Fathpour, "Thin-Film Lithium Niobate on Silicon Mach-Zehnder Electrooptic Modulators up to 50 GHz," *2017 Optical Fiber Communication Conference (OFC)*, Los Angeles, CA, March 2017.
- [9] A. Rao, A. Patil, P. Rabiei, R. DeSalvo, A. Paoella, and S. Fathpour, "Analog Performance of Compact Lithium Niobate Optical Modulators on Silicon," *2016 IEEE Avionics and Vehicle Fiber-Optics and Photonics (AVFOP) Conference*, Long Beach, CA, October-November 2016.
- [10] J. Chiles, S. Toroghi, A. Rao, M. Malinowski, G. F. Camacho-Gonzalez, and S. Fathpour, "Experimental Demonstration of Poling-Free and Non-Resonant Second-Harmonic Generation in Single-Mode Integrated Waveguides," *Frontiers in Optics 2016, OSA Annual Meeting*, Rochester, NY, October 2016 (**postdeadline paper**).
- [11] J. Chiles and S. Fathpour, "Supra-Octave-Spanning Single-Mode and Single-Polarization Operation in Nanophotonic Waveguides," *Frontiers in Optics 2016, OSA Annual Meeting*, Rochester, NY, October 2016.

- [12] A. Rao, M. Malinowski, A. Honardoost, J. R. Talukder, P. Rabiei, P. Delfyett, and S. Fathpour, "Second-Harmonic Generation in Periodically-Poled Thin Film Lithium Niobate on Silicon," *Frontiers in Optics 2016, OSA Annual Meeting*, Rochester, NY, October 2016.
- [13] J.-E. Trembla, Y.-H. Lin, M. N. Sakib, M. Malinowski, S. Novak, P. Qiao, C. Chang-Hasnain, K. Richardson, S. Fathpour, and M. C. Wu, "High- Q and Low-Loss Chalcogenide Waveguide for Nonlinear Supercontinuum Generation," *2016 IEEE Photonics Conference (IPC)*, Waikoloa, HI, October 2016.
- [14] J. Chiles and S. Fathpour, "A Reliable Approach to Membrane Photonics: The T -Guide," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2016)*, San Jose, CA, June 2016.
- [15] M. Malinowski, A. Rao, P. Delfyett, and S. Fathpour, "Synchronously-Pumped Microring Resonator for Efficient Optical Comb Generation," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2016)*, San Jose, CA, June 2016.
- [16] S. Toroghi, S. Khan, and S. Fathpour, "Grating-Assisted Tunable Optical Delay Line in Microring Resonators," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2016)*, San Jose, CA, June 2016.
- [17] A. Rao, A. Patil, P. Rabiei, R. DeSalvo, A. Paoella, and S. Fathpour, "Lithium Niobate Modulators on Silicon Beyond 20 GHz," *IEEE Optical Interconnects Conference 2016*, San Diego, CA, May 2016.
- [18] M. Malinowski, P. Delfyett, and S. Fathpour, "Efficient Frequency Comb Generation," *IEEE International Frequency Control Symposium (IFCS 2016)*, New Orleans, LA, May 2016.
- [19] P. Rabiei, A. Rao, A. Patil, J. Chiles, S. Fathpour, "Lithium Niobate Compact Photonic Devices on Silicon Substrates," *OSA Integrated Photonics Research, Silicon, and Nano-Photonics*, Boston, MA, June-July 2015.
- [20] A. Rao, A. Patil, J. Chiles, M. Malinowski, S. Novak, K. Richardson, P. Rabiei, and S. Fathpour, "Heterogeneous Microring and Mach-Zehnder Lithium Niobate Electro-Optical Modulators on Silicon," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2015)*, San Jose, CA, May 2015.
- [21] J. Chiles, M. Malinowski, A. Rao, S. Novak, K. Richardson, and S. Fathpour, "Extremely Low-Loss Chalcogenide Photonics Devices with Chlorine-Based Plasma Etching," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2015)*, San Jose, CA, May 2015.
- [22] J. Chiles and S. Fathpour, "On-Chip Modulation in the Mid-Infrared with Silicon-on-Lithium-Niobate Photonics," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2015)*, San Jose, CA, May 2015.
- [23] J. Chiles, S. Khan and S. Fathpour, "Wafer-Fusion-Enabled Platforms for Mid-Infrared Integrated Silicon Photonics," *2014 IEEE Summer Topical Meeting Series*, Montreal, Canada, July 2014.
- [24] J. Ma, J. Chiles, Y. D. Sharma, S. Krishna and S. Fathpour, "Two-Photon Photovoltaic Effect in Gallium Arsenide," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2014)*, San Jose, CA, June 2014.
- [25] J. Chiles, and S. Fathpour, "Silicon on Lithium Niobate: A Hybrid Electro-Optical Platform for Near- and Mid-Infrared Photonics," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2014)*, San Jose, CA, June 2014.
- [26] J. Chiles, S. Khan, J. Ma and S. Fathpour, "High-Contrast, All-Silicon Waveguiding Platform for Multi-Octave Integrated Photonics," *Optical Fiber Communication (OFC) conference*, San Francisco, CA, March 2014.
- [27] S. Khan and S. Fathpour, "Apodized Grating Silicon Waveguides for Tunable Optical Delay Lines," *SPIE Photonics West Conference*, San Francisco, CA, February 2014.
- [28] P. Rabiei, J. Ma, S. Khan, J. Chiles, and S. Fathpour, "High-Index Contrast, Low-Voltage Lithium Niobate Modulator," *IEEE Photonics Society Avionics, Fiber-Optics and Photonics Conference*, San Diego, CA, Oct. 2013.

- [29] P. Rabiei, J. Ma, S. Khan, J. Chiles, and S. Fathpour, "Thin-Film Mach-Zehnder Lithium Niobate Optical Modulator on Silicon Substrates with $V_{\pi} \cdot L$ of 4 V·cm," *39th European Conference on Optical Communication - ECOC 2013*, London, UK, September 2013.
- [30] P. Rabiei, J. Ma, S. Khan, J. Chiles, and S. Fathpour, "High- Q Lithium Niobate Microring-Resonators on Silicon," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2013)*, San Jose, CA, June 2013.
- [31] S. Khan, J. Chiles, J. Ma, and S. Fathpour, "Silicon-on-Nitride Optical Waveguides for Mid- and Near-Infrared Integrated Photonics," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2013)*, San Jose, CA, June 2013.
- [32] P. Rabiei, J. Ma, S. Khan, J. Chiles, and S. Fathpour, "Microring Optical Resonators Fabricated by Selective Oxidation of Refractory Metals (SORM)," *Optical Fiber Communication (OFC) conference*, Paper OTu3C.5, Anaheim, CA, March 2013.
- [33] S. Khan and S. Fathpour, "Complementary Apodized Grating Waveguides for Tunable Photonic Delay Lines," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2012)*, Paper CTu3I.6, San Jose, CA, May 2012.
- [34] J. Ma and S. Fathpour, "Analytical Modeling of Mid-Infrared Silicon Raman Lasers," *SPIE Photonics West*, vol. 8264, pp. 82640B-1-B6, San Francisco, CA, January 2012.
- [35] S. Khan and S. Fathpour, "Electronically-Tuned Optical Delay Lines in Silicon," *The 2011 European Conference on Lasers and Electro-Optics*, Munich, Germany, May 2011.
- [36] O. Lopatiuk-Tirpak and S. Fathpour, "Subwavelength Plasmonic Apertured Waveguides for Integrated Photonics Applications," *IEEE Photonics Society Winter Topical Meeting*, Paper TuA1.4, Keystone, CO, January 2011.
- [37] S. Khan and S. Fathpour, "Electronically Tunable Silicon Photonic Delay Lines," *23rd IEEE Photonics Society Annual Meeting*, Paper TuP4, Denver, CO, October, 2010.
- [38] B. Jalali, D. Solli, P. Koonath, D. Borlaug, and S. Fathpour, "Noise, Broadband Gain, Inverse Stimulated Scattering, and Extreme Value Fluctuations; Recent Developments in Silicon Raman Amplifiers," *Frontiers in Optics (FiO) 2010*, Paper: FTuC1, Rochester, NY, October 2010.
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- [40] O. Lopatiuk-Tirpak and S. Fathpour, "Effects of the Substrate on the Optical Properties of Plasmonic Subwavelength Apertures," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2010)*, Paper CFM6, San Jose, CA, May 2010.
- [41] K. K. Tsia, S. Fathpour, B. Jalali, "Dynamic Tuning of Birefringence in Silicon Waveguides," *Conference on Lasers and Electro-Optics (IEEE CLEO 2008)*, paper #CTuDD4, San Jose, CA, May 2008.
- [42] S. Fathpour, K. K. Tsia, and B. Jalali, "Nonlinear Photovoltaic Effect," *IEEE LEOS Annual Meeting 2007*, Paper# ThY4, Lake Buena Vista, FL, October 2007.
- [43] K. K. Tsia, S. Fathpour, and B. Jalali, "Two-Photon Photovoltaic Effect in Silicon Wavelength Converters," *IEEE LEOS Annual Meeting 2006*, pp. 386–87, Montreal, Canada, November 2006.
- [44] K. K. Tsia, S. Fathpour, and B. Jalali, "Energy Harvesting in Silicon Raman Amplifiers," *Group IV Photonics Conference*, pp. 231–233, Ottawa, Canada, September 2006.
- [45] M. Krause, H. Renner, E. Brinkmeyer, S. Fathpour, D. Dimitropoulos, V. Raghunathan, and B. Jalali, "Efficient Raman Amplification in Cladding-Pumped Silicon Waveguides," *Group IV Photonics Conference*, pp. 61–63, Ottawa, Canada, September 2006.
- [46] S. Fathpour, K. Tsia, and B. Jalali, "Photovoltaic Effect in Silicon Raman Amplifiers," *Optical Amplifiers and Their Applications (OAA 2006)*, paper PD1, Whistler, BC, June 2006.

- [47] S. Fathpour, O. Boyraz, D. Dimitropoulos, and B. Jalali, "Demonstration of CW Raman Gain with Zero Electrical Power Dissipation in p - i - n Silicon Waveguides," *Conference on Lasers and Electro-Optics (IEEE/OSA CLEO 2006)*, paper CMK3, Long Beach, CA, May 2006.
- [48] D. Dimitropoulos, S. Fathpour, and B. Jalali, "Predicaments in CW Operation of Silicon Raman Lasers and Amplifiers," *Integrated Photonics Research and Applications (IPRA 2006)*, Paper ITuH4, Uncasville, CT, April 2006.
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- [52] S. Fathpour, P. Bhattacharya, and S. Ghosh, "Low Linewidth Enhancement Factor and Chirp and Suppressed Filamentation in Tunnel Injection In_{0.4}Ga_{0.6}As/GaAs Self-Assembled Quantum Dot Lasers," *Photonics West, Proc. SPIE*, vol. 5361, pp. 29–34, San Jose, CA, January 2004.
- [53] S. Fathpour, P. Bhattacharya, S. Pradhan, S. Ghosh, and J. Topol'ančik, "Modulation Characteristics of In_{0.4}Ga_{0.6}As/GaAs Quantum Dot Gain-Coupled Distributed Feedback Lasers," *16th Laser and Electro-Optics Society Annual Meeting Conference Proceedings (IEEE LEOS 2003)*, pp. 202–203, Tucson, AZ, November 2003.
- [54] S. Chakrabarti, K. Moazzami, S. Fathpour, P. Bhattacharya and J. Phillips, "Pulsed Laser Annealing of Self-Organized InAs/GaAs Quantum Dots," *Electronics Materials Conference*, Salt Lake City, UT, June 2003.
- [55] M. Holub, S. Fathpour, S. Chakrabarti, J. Topol'ančik, P. Bhattacharya, and Y. Lei, "High-Temperature Spin-Polarized Quantum Dot Light-Emitting Diodes," *62nd Device Research Conference Digest*, Notre Dame, pp. 160–161, IN, June 2004.
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