

Mona Jarrahi

Berkeley Micromechanical Analysis and Design Laboratory
Berkeley Sensor and Actuator Center
University of California, Berkeley

497 Cory Hall, Berkeley, CA 94720-1774
(510) 642-9713 (TEL) , (510) 643-6637 (FAX)

<http://www.mjarrahi.net>
mjarrahi@eecs.berkeley.edu
mjarrahi@smirc.stanford.edu

Academic Interests

- I. Terahertz electronics and applications
- II. Applied/Computational electromagnetics
- III. Ultra-fast optical techniques for millimeter-wave integrated circuits
- IV. Millimeter-wave/RF MEMS
- V. Metamaterials

Education

- 09/03 - 09/07 **Ph.D., Electrical Engineering, Stanford University** (Stanford, CA, USA)
Advisor: Thomas H. Lee, Associate advisors: R. Fabian W. Pease, David A. B. Miller
Ph.D. Thesis: *Higher performance analog-to-digital conversion through optical spatial quantization*
- 09/01 - 09/03 **M.S., Electrical Engineering, Stanford University** (Stanford, CA, USA)
Focus: Analog circuit design
- 09/96 – 09/00 **B.S., Electrical Engineering, Sharif University of Technology** (Tehran, Iran)

Research Experience

- 09/07 - present Research Associate, **University of California Berkeley**
Berkeley Micromechanical Analysis & Design Lab, Mechanical Engineering Department
Professor Albert Pisano
Terahertz electronics
- MEMS based reconfigurable metallic photonics crystal terahertz filters
 - MEMS based tuning of narrowband terahertz sources based on photoconductive antenna arrays
- Aluminum Nitride based RF MEMS (resonator/filter)

- 01/01 - 09/07* Research Assistant, **Stanford University**
Stanford Microwave Integrated Circuits Lab, Electrical Engineering Department
Professor Thomas H. Lee
Terahertz electronics
- Computational analysis of integrated free electron lasers
 - Design and fabrication of widely tunable, narrowband terahertz sources based on photoconductive antenna arrays, in collaboration with Oregon State University
- Optically assisted microwave integrated circuits
- Design and fabrication of an analog-to-digital converter based on directly-encoded optical spatial quantization
 - Design and fabrication of an electronic switch based on high-speed phased-array optical beam steering
 - Monolithic design and fabrication of Mach-Zehnder modulator and photodetectors for RF photonics, using GaAs/AlGaAs multiple quantum wells
 - Computational study of optical mode propagation in ridge waveguides, in collaboration with Agilent Technologies
 - Electromagnetic simulation and modeling of transmission lines
- Wideband low noise amplifier design and implementation for multi-standard receiver application, in collaboration with Robert Bosch Corporation
- 06/99 - 06/00* Research Assistant, **Sharif University of Technology**
Prof. Ali Fotowat
PC-based high speed logic analyzer (Bachelor Thesis)

Teaching Experience (Teaching Assistantship)

- Win 05* CMOS RF Integrated Circuit Design (Stanford University)
Fall 04 Analog Integrated Circuit Design (Stanford University)
Fall 02 Analog Integrated Circuit Design (Stanford University)
Fall 01 High Frequency lab, (Stanford University)
Fall 00 Statistics & Probability (Sharif University)
Win 99 Statistics & Probability (Sharif University)

Industry Experience

- 06/02 - 09/02* Robert Bosch Research Center, Palo Alto, CA
Summer intern in the RF/wireless group, working on the design and implementation of a 77GHz VCO for radar application
- 06/00 - 09/00* Kavoshgaran Co., Tehran, Iran
Analog circuit design engineer, working on the design and layout of a 802-11b WLAN receiver, in collaboration with Phillips Semiconductor
- 06/97 - 06/99* Sharif University Electronic Research Center, Tehran, Iran
Software engineer, working on the user interface software for a pc-based coding system

Honors and Awards

June 07	Best student paper award, International Microwave Symposium, Honolulu, Hawaii
Mar 05	Texas Instrument research funding 25,000\$
Dec 04	Agilent Technologies research funding 15,000\$
Feb 05	Outstanding student design award, Analog Devices, Inc
Jan 02	Robert Bosch FMA fellowship
Sep 00	Ranked 7 th , out of 150 in Electrical Engineering program at Sharif University
Sep 96	Ranked 17 th , out of 1,000,000, in Iran's National University Entrance Exam
Sep 95	Silver medal in Iranian National Physics Olympiad

Journal Publications and Conference Proceedings

M. Jarrahi, R. F. W. Pease, D. A. B. Miller, T. H. Lee, "Optical spatial quantization for higher performance analog-to-digital conversion," In press, *IEEE Trans. Microwave Theory and Techniques*, 2008

M. Jarrahi, R. F. W. Pease, D. A. B. Miller, T. H. Lee, "Spatial quantized analog-to-digital conversion based on optical beam-steering," In press, *IEEE Journal of Lightwave Technology*

M. Jarrahi, J. Danielson, T. H. Lee, "High power tunable terahertz generation based on photoconductive antenna arrays," *IEEE MTT-S International Microwave Symposium*, Atlanta, Georgia, June 15-20, 2008

M. Jarrahi, T. H. Lee, D. A. B. Miller, "Wideband, low driving voltage traveling wave Mach-Zehnder modulator for RF photonics," *Photonic Technology Letters*, 20, 2008

M. Jarrahi, R. F. W. Pease, D. A. B. Miller, T. H. Lee, "Optical switching based on high-speed phased-array optical beam steering," *Applied Physics Letters*, 92, 2008

M. Jarrahi, D. A. B. Miller, T. H. Lee, "Monolithic integration of GaAs/AlGaAs phase modulator and photodetector for RF photonics," *Optical Fiber Communication Conference and Exposition (OFC)*, San Diego, California, Feb 24-28, 2008

M. Jarrahi, R. F. W. Pease, T. H. Lee, "Traveling wave spatial quantized analog-to-digital conversion," *IEEE MTT-S International Microwave Symposium*, 225-228, Honolulu, Hawaii, June 5-8, 2007 (**Best student paper award**)

M. Jarrahi, D. A. B. Miller, R. F. W. Pease, T. H. Lee, "Optical spatially quantized high performance analog-to-digital conversion" *Proc. Conference of Lasers and Electro-Optics (CLEO)*, Paper CWJ7, Baltimore, Maryland, May 6-11, 2007

M. Jarrahi, R. F. W. Pease, D. A. B. Miller, T. H. Lee, "Analog-to-digital conversion through directly encoded optical spatial quantization," In review, *Nature*

M. Jarrahi, J. Danielson, T. H. Lee, “Tunable narrowband terahertz radiation based on photoconductive antenna arrays,” In review, *Conference of Lasers and Electro-Optics (CLEO)*, San Jose, California, May 4-9, 2008

M. Jarrahi, R. F. W. Pease, D. A. B. Miller, T. H. Lee, “High-speed optical beam-steering based on phased arrayed waveguides,” In review, *International Conference on Electron, Ion, and Photon Beam Technology and Nanofabrication*, Portland, Oregon, May 27-30, 2008

Seminars and Presentations

<i>May 07</i>	Berkeley Wireless Research Center
<i>April 07</i>	Berkeley Micromechanical Analysis & Design Lab
<i>March 06</i>	University of Maryland, poster presentation
<i>Jan 05</i>	DARPA Annual Review
<i>May 04</i>	Stanford University, CIS AdCom poster presentation
<i>Jan 04</i>	DARPA Annual Review
<i>Nov 04</i>	Stanford University, CIS AdCom poster presentation
<i>Nov 04</i>	Texas Instruments, Dallas, TX
<i>Sep 04</i>	Agilent Technologies, Palo Alto, CA

References

Professor Thomas H. Lee
Stanford Microwave Integrated Circuits Laboratory
Department of Electrical Engineering, Stanford University
CIS 205, 420 Via Palou, Stanford, CA 94305-4070
E-mail: tomlee@smirc.stanford.edu, Phone: 650.725.3709

Professor R. Fabian W. Pease
Department of Electrical Engineering, Stanford University
CISX 314, 420 Via Palou, Stanford, CA 94305
Email: pease@ cis.stanford.edu, Phone: 650.723.0959

Professor David A. B. Miller
Ginzton Laboratory
Department of Electrical Engineering, Stanford University
450 Via Palou, Stanford, CA 94305-4088
E-mail: dabm@ee.stanford.edu, Phone: 650.723.0111

Professor Albert P. Pisano
Berkeley Micromechanical Analysis and Design Laboratory
Department of Mechanical Engineering, University of California Berkeley
6143 Etcheverry Hall, Mailstop 1740, Berkeley, CA 94720-1740
E-mail: apisano@me.berkeley.edu, Phone: 510.643.7013