Personal Information

Burak Baylav
Microsystems Engineering
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Objective

To perform research in the field of Double Patterning Lithography, Extreme Ultraviolet Lithography (EUV), and other alternative lithography techniques.

Education

2008– Present Microsystems Engineering Program , Doctor of Philosophy, Rochester Institute of Technology, Rochester, USA. *GPA: 4.00/4.00*

2006 – 2010 Department of Microelectronics Engineering , Master of Science, Rochester Institute of Technology, Rochester, USA. *GPA: 4.00/4.00*

2002 – 2006 Department of Electrical and Electronics Engineering, Undergraduate, Yeditepe University, Istanbul, Turkey. *GPA: 3.96/4.00*

1999 – 2002 Private Antalya High School, Antalya, Turkey. *GPA: 5.00/5.00*

Experience

2010 – Present

- Internship at IMEC (Interuniversity MicroElectronics Centre) Research Facility, Leuven, Belgium.

2008 – 2010

- Microsystems Engineering Program, Doctor of Philosophy, Rochester Institute of Technology
  - Research Assistant: worked on "Non-Chemically Amplified Photoresist Chemistries for 193 nm Lithography", funded by SEMATECH, Albany

2006 – 2008

- Department of Microelectronics Engineering, Master of Science , Rochester Institute of Technology
  - Teaching Assistant for Microelectromechanical Systems (MEMs) and IC Technology Laboratories
    - Responsibilities included training students on the tools, running RIT's Advanced CMOS Process, designing masks, lecturing laboratories, designing and manufacturing of printed circuit boards for processed MEMs chips, and grading lab notebooks.
  - Research Assistant: "*Power Distribution Backplane for Prototype Inkjet Head."*
    - Responsibilities included designing an array of MOSFETs to minimize gate delays and building high voltage transistors. Funded by Eastman Kodak, Rochester, New York.
  - Independent Research with Dr. Lynn Fuller
    - Designing a new test chip for RIT's Submicron CMOS Process including analog, digital, and mixed circuit blocks.

2005 – 2006

- Department of Electrical and Electronics Engineering, Yeditepe University
  - Digital Electronics Undergraduate Teaching Assistant
  - Analog Electronics Undergraduate Teaching Assistant

2003 – 2005

- Independent Tutor
  - Taught private lessons for Circuit and Systems; Introduction to Electronics; Communication Systems I and II.

Languages

English: Advanced, Turkish: Native

Computer Skills

- Mentor Graphics IC Station, Calibre Tools for OPC
- Silvaco - Suprem IV
- KLA Prolith
- PCB123 Printed Circuit Board Design
- Matlab, Mathcad
- MESA Process Tracking System
- PSpice,Winspice
- Computer Programming C

Honors & Awards

2008 Prof. Renan Turkman Scholarship, Rochester Institute of Technology
2006 – Present Graduate Studies Scholarship Rochester Inst. of Tech. (tuition & stipend)
2002 – 2006 Graduated from Yeditepe University, Turkey, High Honor, Rank 1st
2002 – 2006 Dean's List (seven times), Yeditepe University, Istanbul
2002 – 2006 Government Scholarship for Undergraduate Studies (tuition and stipend)
1999 – 2002 Graduated from Private Antalya High School, Turkey, Rank 1st
1999 – 2002 Scholarship for High School Education (tuition and stipend)

Related Courses

Graduate level:

- Microelectronics I, II, and III
- Semiconductor Process and Device Modeling
- Quantum and Solid State Physics Fundamentals
- Advanced Field Effect Devices
- Microlithography Materials and Processes
- Microlithography Systems
- Microelectronics Manufacturing I and II
- Microelectromechanical Systems (MEMS)
- Fourier methods for Imaging
- Optics and Optical Image Formation
- Introduction to Nanotechnology
- Introduction to Theoretical Methods

Undergraduate level:

- Introduction to Electronics, Analog and Digital Electronics, High Frequency Electronics, Fundamentals of Analog and Mixed Integrated Circuit Design
- Electrical Circuits, Circuit and Systems
- Electromagnetic Fields, Electromagnetic Waves, Antennas and Propagation
- Signals and Systems, Communication Systems I and II
- Logic Circuits, Microprocessors
- Electromechanical Energy Conversion, Fundamentals of Power Systems
- Control Systems, Mechatronics

B.Sci. Research Project

*"A Novel Switched Capacitor Ultra-low Current Reference",*Istanbul, May 2006. Advisor: Dr. Ugur Cilingiroglu, Yeditepe University.

Master of Science Thesis

"Exploration of Non-Chemically Amplified Resists Based on Dissolution Inhibitors for 193 nm Lithography", Rochester, February 2010. Advisor: Dr. Bruce W. Smith, Rochester Institute of Technology.

Publications

1- Baylav, B.; Zhao, M.; Yin, R.; Xie, P.; Scholz, C.; Smith, B.; Smith, T.; Zimmerman, P., "Alternatives to Chemical Amplification for 193 nm Lithography", *Proceedings of SPIE*, Vol. 7639, 763915, 2010.

2- Baylav, B.; Fuller, L.F.; Kudithipudi, D., "A New Test Chip for CMOS Manufacturing Laboratory Courses at RIT," *University/Government/Industry Micro/Nano Symposium, 2008. UGIM 2008. 17th Biennial* , vol., no., pp.79-84, 13-16 July 2008

Past Projects

1- "Non-Chemically Amplified Photoresist Chemistries for 193 nm Lithography", funded by SEMATECH, Albany. Advisors: Dr. Bruce W. Smith, Dr. Thomas W. Smith, Dr. Paul Zimmerman

2- "Power Distribution Backplane for Prototype Inkjet Head", funded by Eastman Kodak, Rochester. Advisor: Dr. Lynn Fuller.

3- "New Test Chip Design for RIT's Submicron CMOS Process" funded by RIT Computer Engineering Department, Rochester. Advisor: Dr. Lynn Fuller.

Other Activities

2010 – Present The Honors Society of Phi Kappa Phi member
2008 – Present OSA (Optical Society of America) Member
2008 – Present SPIE Member
2005 – Present IEEE Member
1993 – 1999 School Volleyball Team
1993 – 1996 School Table Tennis Team (*won 3rd place in city wide competition)*

-References available upon request-