

- Objective** Research or development position in a dynamic and challenging environment with opportunities for professional and personal growth.
- Education** **The University of Texas**, Austin, TX. Doctoral Candidate in Chemical Engineering; Ph.D. expected in February 2003. GPA 3.5/4.0
- Massachusetts Institute of Technology**, Cambridge, MA. S.B., Chemical Engineering, June 1998. GPA 4.4/5.0.
- Hudson Valley Community College**, Troy, NY. A.S. Engineering Science, May 1996. GPA 3.9/4.0
- Research** **The University of Texas at Austin**. August 1998 – present. Advised by J.G. Ekerdt and C.G. Willson. Contributed to various aspects of Step and Flash Imprint Lithography (SFIL), a new, low-cost lithography technology that enables patterning at smaller dimensions than current optical projection lithographic techniques.
- Massachusetts Institute of Technology**. January 1997 – June 1998. Advised by K.K. Gleason. Undergraduate research on pulsed plasma-enhanced chemical vapor deposition of fluoropolymers.
- Experience** **Motorola Physical Sciences Research Labs**, Tempe, AZ. May-August 2001. Graduate student intern in the Advanced Lithography group. Developed baseline processes for imprint template fabrication for use in Step and Flash Imprint Lithography.
- Philips Analytical**, Natick, MA. June – October 1999. Graduate student intern assigned to serve as liaison with Sematech Interconnect Group during development of a tool that uses impulsive stimulated thermal scattering technology. Interfaced daily with Sematech staff and assignees to determine tool needs, and worked with Philips staff in MA to demonstrate tool capabilities.
- Advanced Micro Devices Submicron Development Center**, Sunnyvale, CA. June - August 1998. Summer Intern in the Advanced Process Development Diffusion group. Developed a factorial DOE to map parameter space for a new RTP cluster tool. Experimented with various Si<sub>3</sub>N<sub>4</sub> and SiO<sub>2</sub> recipes, and dielectric stacks, and compared them to standard LPCVD films.
- Intel Corporation**, Beaverton, OR. June - August 1997. Summer Intern, Tungsten CVD group. Created an on-line defect picture book for use within the fab. Helped isolate particle-producing areas within the tools, and developed a troubleshooting system for defects. Analyzed etch endpoint data to revise a process recipe.
- Cambridge Partnership for Public Education**, Cambridge, MA. November 1996 - January 1998. Technology Trainer. Co-authored a training and certification program in computer and related technologies to be used by teachers in the Cambridge Public School system. Gave lessons in basic computing to members of the local community.
- Chi Chi's Mexican Restaurant**, Albany, NY. August 1989 - February 1993. General Manager. Responsible for a \$2.0M operating budget. Supervised 5 managers and in excess of 100 employees. Developed and executed plan to build revenues and lower food/liquor/labor costs from 89% to 77%, which helped bring the restaurant into profitability.
- Publications** T.C. Bailey, J.G. Ekerdt, and C.G. Willson, "Film Thickness Variation Implications on Defect Inspection for Imprint Lithography," J. Microlith, Microfab, & Microsystems, (2002) submitted for publication.
- T.C. Bailey, *et al.*, "Step and Flash Imprint Lithography: A Low-Pressure, Room

Temperature Nanoimprint Patterning Process”, in Alternative Lithography. Unleashing the Potentials of Nanotechnology, C.S. Torres, Editor. 2003, Elsevier.

T.C. Bailey, *et al.*; “Recent Advances in Step and Flash Imprint Lithography;” Proc. Arch Interface (2002).

T.C. Bailey, *et al.*; “Step and Flash Imprint Lithography: An Efficient Nanoscale Printing Technology;” J. Photopolymer Sci. Tech. 15(3) (2002), p.481.

W.J. Dauksher, *et al.*; “Characterization of and Imprint Results using ITO-based Step and Flash Imprint Lithography Templates;” J. Vac. Sci. Tech. B 20 (6) (2002), p.2857.

D.J. Resnick, *et al.*; “High Resolution Templates for Step and Flash Imprint Lithography;” Proc. SPIE: Emerging Lithographic Technologies VI, v.4688 (2002) ,p. 2896.

T.C. Bailey, *et al.*; “Template Fabrication Schemes for Step and Flash Imprint Lithography”; Microelectronic Engineering v.61-62 (2002), p. 461.

M. Colburn, *et al.*; “Development and Advantages of Step-and-Flash Lithography”; Solid State Technology; 46 (7) (2001); p. 67.

T. Bailey, *et al.*; “Step and Flash Imprint Lithography: Defect Analysis”; J. Vac. Sci. Tech. B 19(6) (2001), p. 2806.

T. Bailey, *et al.*; “Step and Flash Imprint Lithography: Template Surface Treatment and Defect Analysis”; J. Vac. Sci. Tech. B 18(6) (2000), p. 3572.

M. Gostein, *et al.*. "Thickness measurement for Cu and Ta thin films using optoacoustics." Proceedings of the IEEE IITC, 2000. Burlingame / San Francisco, CA. (2000) p. 176.

T. Bailey; Pulsed Plasma-Enhanced Chemical Vapor Deposition of Poly-Para-Xylylene Films from [2,2]Paracyclophane, and The Effect of Pulsing Parameters and Peak Power Input on Pulsed Plasma-Enhanced Chemical Vapor Deposited Fluorocarbon Films from Hexafluoropropylene Oxide; Bachelor Thesis, Massachusetts Institute of Technology, 1998.

## Patents

US Patent Applications 20020093122, 20020094496, 20020115002

World Patent Applications WO2002010721, WO2002006902, WO2002008835

## Honors/Activities

Z.D. Bonner Fellow (2000-2003)

Member, Sigma Xi, The Scientific Research Society, MIT chapter (1998-present)

Chair, Chemical Engineering Graduate Student Executive Committee (UT 1999-2000)

University of Texas College of Engineering Thrust Fellow (1998-1999)

AIChE Vice President (MIT 1997-1998)

HVCC Honors Convocation Guest Speaker (1997)

President's Award for Community Service (HVCC 1996)

Student Senate President (HVCC 1995-1996)

Faculty-Student Association Board member (HVCC 1995-1996)

Founder and President, Engineering Science Association (HVCC 1994-1995).