

HENRY DANIEL YOUNG

EDUCATION

- 5/1997–4/1999 **Ph.D. Materials Science and Engineering**
University of Maryland, College Park
Advisor: Dr. Aristos Christou
Ph.D. Topic: “ Pb-La-Zr-Ti-O Heterostructures as Transverse Electro-Optic Modulators”
- 8/1993–5/1997 **M. S. Materials Science and Engineering**
University of Maryland, College Park
- 8/1989–5/1993 **B. S. Engineering Physics**
University of Illinois, Champaign-Urbana

PROFESSIONAL EXPERIENCE

- 9/2003-Present **Assistant Professor, Wright State University**
Department of Mechanical and Materials Engineering
- Novel ceramic and polymer fiber nanostructures
 - Fundamental studies of laser forward transfer of fluids
 - Porous Titanium Electrodes for Biofuel Cell Applications
- 7 / 2000 – 8/2003 **NRC Postdoctoral Associate, Naval Research Laboratories**
- 3 / 2000 – 7 / 2000 **Contractor (SFA, Inc), Naval Research Laboratories**
- Nanochannel Glass Materials
 - Ultra-fast imaging of fundamental mechanisms in fluidic laser forward transfer
 - Biological applications of soft laser-forward transfer, study of bio-specific transfer issues.
- 5 / 1999 – 3 / 2000 **Faculty Research Associate, Army Research Laboratories, Adelphi, Maryland**
- Development of 850nm top-emitting, oxide confined vertical cavity surface emitting lasers (VCSELs) and monolithic integration with resonant cavity photodetectors for two-way photonic interconnections.
 - MBE of III-V semiconductor heterostructures, extensive clean room processing.
- 8 / 1993 – 4 / 1999 **Graduate Research Assistant, University of Maryland, College Park**
- Deposition, device fabrication, physical and optical characterization, and modeling of thin film oxide heterostructures for electro-optic applications.
 - Construction and maintenance of PVD systems (pulsed laser ablation, e-beam evaporation). Clean room maintenance.
 - DIMENSION 3000 Nanoprobe operator in a multi-user microscopy facility: assisted university and industrial customers with atomic force microscopy.
 - Microelectronic reliability and packaging issues.
- 6 / 1993 – 8 / 1993 **Summer Intern, EC Technologies, Plainfield, Illinois**
- 6 / 1992 – 8 / 1993
- Research on application of a novel ceramic fiber fabrication procedure to various technological ceramic materials.
 - Bulk ceramic processing, ceramic powder processing, multilayer tape casting for fuel cell applications.
 - Production of ceramic precursors for fuel cell materials.

REFEREED PUBLICATIONS

1. M. Gorantla, S. E. Boone, M. El-Ashry, D. Young, "Continuous polymer nanofibers by extrusion into a viscous medium: A modified wet spinning technique", *Applied Physics Letters*, accepted for publication with mandatory revisions.
2. J. Barrons, D. Young, B. R. Ringeisen, D. D. Dlott, D. Krizman, M. Darfler, "Protein Printing via a Capillary-Free Fluid Jetting Mechanism" *Proteomics* 5 (2005) 16, 4138-4144.
3. D. Young, R. C. Y. Auyeung, A. Piqué, D. B. Chrisey, D. D. Dlott, "Plume and Jetting Regimes in a Laser Based Forward Transfer Process as Observed by Time-Resolved Optical Microscopy," *Applied Surface Science* 197 (2002) 181-187.
4. B. R. Ringeisen, D. B. Chrisey, A. Pique, D. Young, R. Modi, M. Bucaro, J. Jones-Meehan, B. J. Spargo, "Generation of Mesoscopic Patterns of Viable *Escherichia Coli* by Ambient Laser Transfer," *Biomaterials* 23 (2002) 161-166.
5. D. Young, R. C. Y. Auyeung, A. Piqué, D. B. Chrisey, "Time Resolved Optical Microscopy of a Laser-Based Forward Transfer Process," *Appl. Phys. Lett.*, 78 (2001) 3139-3171.
6. D. Young, H. D. Wu, R. C. Y. Auyeung, R. Modi, J. Fitz-Gerald, A. Pique, D. B. Chrisey, P. Atanassova, T. Kudas, "Dielectric Properties of Oxide Structures by a Laser-Based Direct Writing Method," *J. Mater. Res.*, 16 (2001) 1720-1725.
7. D. B. Chrisey, A. Pique, R. Modi, H. D. Wu, R. C. Y. Auyeung, D. Young, R. Chung, "Direct Writing of Conformal Mesoscopic Electronic Devices by MAPLE-DW," *Applied Surface Science* 168 (2000) 345-352.
8. O. C. Wilson, Jr., T. Olorunyolemi, A. Jaworski, L. Borum, D. Young, A. Siriwit, E. Dickens, C. Oriakhi, M. Lerner, "Surface and Interfacial Properties of Polymer-Intercalated Layered Double Hydroxide Nanocomposites," *Applied Clay Science (special issue, Clay Mineral Nanocomposites)*, October 1998.
9. A. M. Dhote, S. Madhukar, D. Young, T. Venkatesan, R. Ramesh, C. M. Cotell, and J. M. Benedetto, "Low Temperature Growth and Reliability of Ferroelectric Memory Cell Integrated on Si with Conducting Barrier Stack," *J. Mater. Res.*, vol. 12, no. 6, Jun 1997.
10. G. Zhang, S. Ng, D. Le, and D. Young, "Hardness Assessment of Human Enamel," *1997 International Association for Dental Research*.
11. D. Young, A. Christou, and R. Ramesh, D. K. Fork, B. Krusor, "Growth of (001) Oriented La-Sr-Co-O/Pb-La-Zr-Ti-O/La-Sr-Co-O Ferroelectric Capacitors on (001) GaAs with a MgO Buffer Layer," *Integrated Ferroelectrics*, 12, (1996) 63-69,.
12. D. Young, A. Christou, "Failure Mechanism Models for Electromigration" *IEEE Transactions on Reliability*, vol. 43, no. 2, Jun 1994.

CONFERENCE PROCEEDINGS AND PRESENTATIONS

1. M. K. Gorantla, S. Mellacheruvu, D. Young, "Fabrication and Fiber mechanics of Nanofibers Produced by a Modified Wet Spinning Technique," *Materials Science and Technology '05*, Session: Nanomaterials: Nanomaterials Synthesis and Characterization, 9/27/2005
2. D. Young, R. C. Y. Auyeung, A. Pique, D. B. Chrisey, D. D. Dlott, "Laser Forward Transfer of Fluids," *SPIE Photonics West, LAMOM* 4637A-81.
3. D. Young, H.D. Wu, R. Modi, H. Denham, A. Pique, D.B. Chrisey, "Laser-Direct Writing of Conductor and Dielectric Multilayers for Storage Capacitor Applications," *Materials Research Society Fall Meeting, 2001*, Q3.5.
4. D. Young, R. C. Y. Auyeung, H. Denham, A. Pique, D. B. Chrisey, "Ultra High-Speed Imaging of a Laser Forward Transfer Process Using a Colloidal Ink Layer," *Materials Research Society Fall Meeting, 2001*, Q3.9.

5. D. Young, R. C. Y. Auyeung, A. Piqué, D. B. Chrisey, D. D. Dlott, "Dynamics of Plume Generation in a Laser Forward Transfer Process," *Conference on Laser Ablation '01*, October 1-5, Tsukuba, Japan.
6. B. Ringeisen, D. B. Chrisey, A. Pique, D. Young, R. Modi, B.H. Thompson, R. Chung, "Direct Writing of Passive and Active Circuits and Coatings on Insects," *Darpa Insect Tracking Workshop*, August 2-3, Southwest Research Institute, Bldg 160, 6220 Culebra Rd., San Antonio, TX, 78238-5166.
7. R. C. Y. Auyeung, H. D. Wu, R. Modi, A. Pique, J. M. Fitz-Gerald, D. Young, S. Lakeou, R. Chung, D. B. Chrisey, "Matrix Assisted Laser Transfer of Electronic Materials for Direct Write Applications," *Laser Processing of Materials 2000*, June 14, Omiya Sonic City, Saitama, Japan.
8. L. J. Martinez-Miranda, O. C. Wilson Jr, I. Aninye, P. Vakil, D. Young, "Liquid Crystal Behavior of the Self-Alignment and Orientational Transformations in Al-Fe Hydroxide Nanoparticles," Meeting of the American Physical Society, session B30 (Liquid Crystals II) March 20 - 24, 2000, Minneapolis, MN.
9. L. J. Martinez-Miranda, O. C. Wilson Jr, I. Aninye, P. Vakil, D. Young, "Self-alignment and orientational transformations in Al-Fe hydroxide nanoparticles," Meeting of the Materials Research Society, session G, Nov. 30 - Dec. 3, 1999, Boston, MA.
10. O. C. Wilson, Jr., T. Olorunoyemi, A. Jaworski, L. Borum, D. Young, E. Dickens, C. Oriahki, "Surface Properties of Layered Double Hydroxide Nanocomposites," *Bioceramics: Materials and Applications* (Proceedings from American Ceramic Society, 1999) .
11. D. Young, R. Ramesh, A. Christou, "Optical Phase and Amplitude Modulation in (9/65/35) Pb-La-Zr-Ti-O Thin Films," *Fall 1998 MRS Symposium O*.
12. A. Dimoulas, R. Tober, D. Young, R. Levitt, A. Christou, "Strain Related Excitonic In-Plane Optical Anisotropy in (100) InGaAs / InAlAs / InP Multiple Quantum Wells," presented at *23rd International Conference on Compound Semiconductors*, St. Petersburg, Russia, 23-27 September 1996, published in *Inst. Phys. Conf. Ser.*, #155, 1997, Chapt. 2, pps. 69-72.
13. D. Young, R. Ramesh, and A. Christou, "Ferroelectric La-Sr-Co-O/Pb-La-Zr-Ti-O/La-Sr-Co-O Oxide Heterostructures Grown on (001) GaAs and (001) Si," *1995 Fall Mat. Res. Soc. Symp.*, vol. 401, abstract G6.6.

PATENTS

1. D. Young, R.C.Y. Auyeung, B.R. Ringeisen, D.B. Chrisey, D. Dlott. *Jetting Behavior in the Laser Forward Transfer of Rheological Fluids*, Navy Case #83,476 (awarded 11/2004), U.S. Patent #6,815,015.
2. R.C.Y. Auyeung, H.D. Young, R. Modi, H.D. Wu, B.R. Ringeisen, J. Fitz-Gerald, D.B. Chrisey. *Laser Forward Transfer of Rheological Systems*. Navy Case #83,186 (awarded 10/2004), US Patent #6,805,918.

PROFESSIONAL ACTIVITY

Session Chair:	MST'05 Coatings 2005: Processing I
Reviewer:	Transactions on Device Reliability
Reviewer:	Kentucky Science and Engineering Foundation
Reviewer:	Missile Defence Agency