

David L. Trumper
Professor of Mechanical Engineering

Education:

Massachusetts Institute of Technology	B.S. - EECS	June 1980
Massachusetts Institute of Technology	M.S. - EECS	June 1984
Massachusetts Institute of Technology	Ph.D. - EECS	Sept. 1990

MIT Years Service and Academic Appointments:

September 1993 – March 1995	Assistant Professor
March 1995 - June 1996	Rockwell International Career Development Assistant Professor
July 1996 – February 1998	Rockwell International Career Development Associate Professor
March 1998 – June 2000	Associate Professor
July 2000 – June 2004	Associate Professor with tenure
July 2004 – present	Professor

Other Related Experience

1980 – 1982	Engineer	Hewlett-Packard Co.
1986 – 1987	Engineer	Waters Division of Millipore
1990 – 1993	Assistant Professor of Electrical Engineering	University of North Carolina – Charlotte
1993 – 1998	Adjunct Professor of Electrical Engineering	University of North Carolina - Charlotte

Consulting & Patents for last five years

2008 - 2009	Sughrue, Mion	2011 - 2011	Hamilton, Brook, Smith and Reynolds
2009 – 2009	Lang, Michener		
2009 - 2009	Satisloh	2011 – 2012	DLA Piper
2009 - 2010	SSG	2014 - 2014	DLA Piper
2010 - 2010	Oblon, Spivak	2012 - present	Sughrue, Mion

U.S. Issued Patents:

Montesanti, R.C., Trumper, D.L., and Kirtley, J.L., “Electromagnetic Variable Degrees of Freedom Actuator Systems and Methods,” #7,492,117, February, 2009.

Montesanti, R.C., Trumper, D.L., and Kirtley, J.L., “Rotary Fast Tool Servo System and Methods,” #7,574,947, August, 2009.

Lu, X-D., and Trumper, D.L., “Variable reluctance fast positioning system and methods,” #7,616,084 , November, 2009.

Kendale, A., and Trumper, D.L., “Microcontact Printing,” #7,665,983, February, 2010.

Trumper, D.L., and Cuff, D., “Magnetic micropositioner and method of providing the same,” #7,765,905, August, 2010.

Trumper, D.L., and Kluk, D., “Variable reluctance fast positioning system and methods,” #7,772,947, August, 2010.

Trumper, D.L., and Mackenzie, I., “High-scan rate positioner for scanned probe microscopy,” #8,358,039, January, 2013.

Trumper, D.L., Lang, J.H., Cannon, B.L., Zahn, M., “System and method for providing electromagnetic imaging through electroquasistatic sensing,” Notice of allowance received December, 2012, continuation filing in process.

Trumper, D.L., Lang, J.H., Cannon, B.L., Zahn, M., “System and method for providing electromagnetic imaging through magnetoquasistatic sensing,” #8,669,771, March, 2014. Continuation filing in process.

Professional Registration: None

Principal Publications for last five years

1. Mazzeo, A., Stein, A.J., Hocken, R.J., and Trumper, D.L., “A Metrological Atomic Force Microscope,” *Precision Engineering: Journal of the International Societies for Precision Engineering*, Volume 33, Issue 2, April 2009, pp. 135-149.**
2. Buice, E.S., Otten, D., Yang, R.H., Smith, S.T., Hocken, R.H., and Trumper, D.L., “Design Evaluation of a Single-Axis Precision Controlled Positioning Stage,” *Precision Engineering: Journal of the International Societies for Precision Engineering*, Volume 33, Issue 4, October 2009, pp. 418-424.

3. Yong Zhao, David L. Trumper, Ralf K. Heilmann, Mark L. Schattensburg, "Optimization and temperature mapping of an ultra-high thermal stability environmental enclosure," *Precision Engineering: Journal of the International Societies for Precision Engineering*, Volume 34, Issue 1, January 2010, pp. 164-170.**
4. Kluk, D.J., Boulet, M.T., and Trumper, D.L., "A High-Bandwidth, High-Precision, Two-Axis Steering Mirror with Moving Iron Actuator," IFAC Mechatronics, special issue on Micro-Nano Mechatronics, Volume 22, Issue 3, pp. 257-270, April 2012. **Selected for 2014 IFAC Mechatronics Best Paper Award.**
5. Amin-Shahidi, D., and Trumper, D.L., "Improved Charge Amplifier Using Hybrid Hysteresis Compensation," *Review of Scientific Instruments*, Vol. 84, Issue 8, August, 2013.
6. Yoon, Jun-Young, and Trumper, D.L., "Friction Modeling, Identification, and Compensation Based on Friction Hysteresis and Dahl Resonance," accepted for publication in IFAC Mechatronics, Feb. 2014.
7. Amin-Shahidi, D., and Trumper, D.L., "Design and Control of a Piezoelectric Driven Reticle Assist Device for Prevention of Reticle Slip in Lithography Systems," accepted for publication in IFAC Mechatronics, Feb. 2014.
8. Mentzer, S.J., Belle, J.M., Ysasi, A.B., Bennett, R.D., Filipovic, N., Imani-Nejad, M., Trumper, D.L., Ackermann, M., Wagner, W., Tsuda, A., Konerding, M.A., "Stretch-induced Intussusceptive and Sprouting Angiogenesis in the Chick Chorioallantoic Membrane," accepted for publication in *Microvascular Research*, June 2014.

Scientific & Professional Societies

Corresponding Member, International Institution for Production Engineering Research (CIRP)
 Institute of Electrical and Electronics Engineers (IEEE)
 American Society for Precision Engineering (ASPE): Director-at-Large, 1995-1998, Guest editor, *Precision Engineering*, 1997-1998, Associate Editor, *Precision Engineering*, 1998-present, Vice-President, 2004-2005, President 2005-2006
 American Society of Mechanical Engineers (ASME)

Honors & Awards

3M Innovation Award	2001
Spira Award for Excellence in Teaching	2002
Keenan Award	2006

Department & Institute Committees

Ligo Oversight Committee	2002	2002
Sophomore Registration Officer	2004	2005
Junior Registration Officer	2005	2007
Department Education Council	2005	2007
Undergraduate Education Committee	2005	2007
School of Engineering Committee on Underrepresented Minority Graduate Student Enrollment	2005	2006
Graduate Admissions Committee	2006	2007
Control and Mechatronics Faculty Search Committee	2006	2007
MIT 150 Organizing for ME Dept.	2011	2011
Chancellor's Committee on IFC	2011	2011
Graduate Admissions Committee	2008	present
Departmental Awards Committee	2011	present
Independent Activities Period Coordinator	2012	present

Professional Service for the past three years

Member, Editorial Board, <i>Mechatronics</i> , pub. by Elsevier Science Precision Systems," MIT, Cambridge, MA.	1999-present
Co-Chairman, ASPE Spring Topical Meeting, "Control of Precision Systems," MIT, Cambridge, MA.	April 2013
ASPE Tutorial Course, "Control Systems Fundamentals," MIT, Cambridge, MA.	April 2013
International Steering Committee, International Symposium on Magnetic Bearings 14 (ISMB-14), Linz, Austria	August 2014